

webMethods PeopleSoft Adapter Installation and User's Guide

Version 6.0

July 2012

This document applies to webMethods PeopleSoft Adapter 6.0 and to all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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This guide describes how to configure and use the webMethods PeopleSoft Adapter Version 6.0. It contains information for administrators and application developers who want to exchange data with PeopleSoft systems.

To use this guide effectively, you should be familiar with:

- The PeopleSoft Internet Architecture (PIA) and how your organization uses it
- The terminology and basic operations of your operating system
- The setup and operation of the webMethods Integration Server.
- How to perform basic tasks with Software AG Designer.

Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
Narrowfont	Identifies service names and locations in the format <i>folder.subfolder.service</i> , APIs, Java classes, methods, properties.
<i>Italic</i>	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
Monospace font	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the symbol.
[]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

Online Information and Support

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- Add product feature requests.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

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Overview of the Adapter

The webMethods PeopleSoft Adapter is an add-on to the webMethods Integration Server that allows you to exchange data with PeopleSoft systems. The adapter provides seamless and real-time communications to and from PeopleSoft systems without requiring changes to the existing security infrastructure.

Using the PeopleSoft Adapter, Integration Server clients can configure and run services that perform operations to retrieve data from, and insert and update data in, PeopleSoft systems. For example, you can use the PeopleSoft Adapter to add or modify employee records based on data from other resources such as Siebel or Oracle Applications.

The PeopleSoft Adapter provides solutions for both webMethods-to-PeopleSoft (inbound) communications and PeopleSoft-to-webMethods (outbound) communications.

PeopleSoft Server version 8.x introduced PeopleSoft's Pure Internet Architecture (PIA). The PeopleSoft PIA includes PeopleSoft component interfaces (CIs), which enable external applications to access objects created using PeopleSoft's Application Designer.

For webMethods-to-PeopleSoft communications, the PeopleSoft Adapter uses the PeopleSoft CI APIs to exchange data with PeopleSoft systems by invoking operations and methods on PeopleSoft Components via PeopleTools.

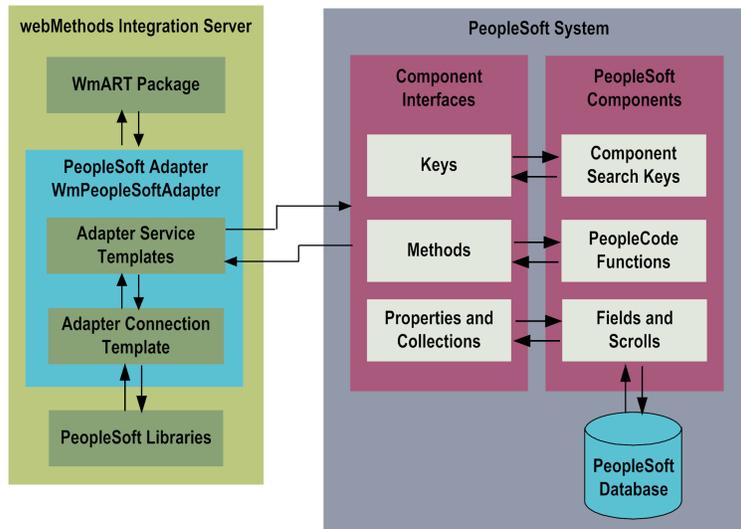
For PeopleSoft-to-webMethods communications, the PeopleSoft Adapter offers some pre-defined flow services to make it easier to use PeopleSoft's Application Messaging capabilities.

For detailed installation instructions, see [“Installing and Uninstalling the PeopleSoft Adapter” on page 31](#). For a list of the PeopleSoft versions and platforms that the PeopleSoft Adapter supports, see the *webMethods Adapters System Requirements*.

Architecture and Components

This diagram illustrates how the PeopleSoft Adapter interfaces with a PeopleSoft system using the PeopleSoft component interface Java APIs. Following the diagram are descriptions of the different architectural pieces involved in the integration process.

For a more detailed description of the run-time data flow for the different types of PeopleSoft Adapter services, see [“Adapter Services” on page 16](#).



- **webMethods Integration Server** . The PeopleSoft Adapter is installed and runs on the Integration Server.
- **WmART Package**. The WmART package provides a common framework for webMethods 6.0 and later adapters to use Integration Server functionality, making the Integration Server the run-time environment for the PeopleSoft Adapter. The WmART package is installed with the Integration Server.
- **PeopleSoft Adapter** . The PeopleSoft Adapter is delivered as a single package called WmPeopleSoftAdapter.

The PeopleSoft Adapter provides Integration Server Administrator user interfaces that enable you to configure and manage adapter connections, and Software AG Designer user interfaces that enable you to configure and manage adapter services.

- **Adapter Connection Templates**. Adapter connections enable the PeopleSoft Adapter to connect to PeopleSoft systems. You must configure an adapter connection before you can configure adapter services.

The adapter provides a template for adapter connections in the Integration Server Administrator. For a detailed description of adapter connections, see [“Adapter Connections” on page 14](#).

- **Adapter Service Templates**. Adapter services enable the PeopleSoft Adapter to implement component interface methods to perform operations on PeopleSoft components. The PeopleSoft Adapter provides adapter service templates that enable you to configure services to find, get, insert, update, and delete component interface instances (or records).

For example, a Get service could enable you to retrieve data records that are then passed to another resource such as a custom benefits application. Or you could use an Insert service within a flow service that takes data from another resource (for example, a database), and then insert that data into a PeopleSoft system.

The PeopleSoft Adapter's adapter service templates are available in Designer. For a detailed description of adapter services, see [“Adapter Services” on page 16](#).

- **PeopleSoft Libraries.** The PeopleSoft Adapter requires PeopleSoft-supplied files to be able to interface with the PeopleSoft component interfaces.

For more information about the PeopleSoft libraries that the adapter requires, see [“Setting Up Your Adapter's Environment” on page 44.](#)

- **PeopleSoft Components.** In PeopleSoft, applications are built using PeopleSoft components, which are graphical user interface pages, business logic, and data, that are grouped together for specific business purposes.
- **Component Interfaces.** Component interfaces (CIs) are PeopleTools objects that expose PeopleSoft component business logic and data to external applications, enabling the external applications to find, create, modify, or delete data (records) from the components synchronously, in real-time. The PeopleSoft Adapter uses PeopleSoft's component interface Java APIs to perform operations on PeopleSoft components. PeopleSoft applications provide predefined CIs; you can also create custom CIs using PeopleSoft's Application Designer.

A component interface maps to one, and only one, PeopleSoft component. A component interface is created in the PeopleSoft Application Designer. Record fields on the PeopleSoft component are mapped to the keys and properties of the component interface. Methods are used to find, create, modify or delete data.

A CI instance is a CI object that is populated with a single group of data (called a record throughout this guide) that describes a unique business object. The PeopleSoft Adapter enables you to perform operations on CI records.

Component interface keys, methods, properties, and collections are described as follows:

- **Keys.** Keys are properties containing values that uniquely identify an instance (or record) of a component interface. When you create a component interface, keys are automatically created based on the underlying component's search record. However, you can add or change certain keys if desired.
- **Methods.** A method performs a specified task on a component interface at run time. There are two types of component interface methods: standard methods and user-defined methods.

The PeopleSoft Adapter supports standard methods, which are automatically generated when you create a component interface. They provide basic data processing functions such as Create, Find, Get, Cancel, and Save. Data collection methods enable you to access an item by key, index, or effective date.

The PeopleSoft Adapter does not support user-defined methods.

- **Properties and Collections.** Properties provide access to component data and CI settings and status. There are two types of properties: standard properties and user-defined properties. Standard properties (such as InteractiveMode, GetHistoryItems, and EditHistoryItems) are assigned automatically when a component interface is created. User-defined properties map to record fields in PeopleSoft components. Both types of standard properties are available to the PeopleSoft Adapter.

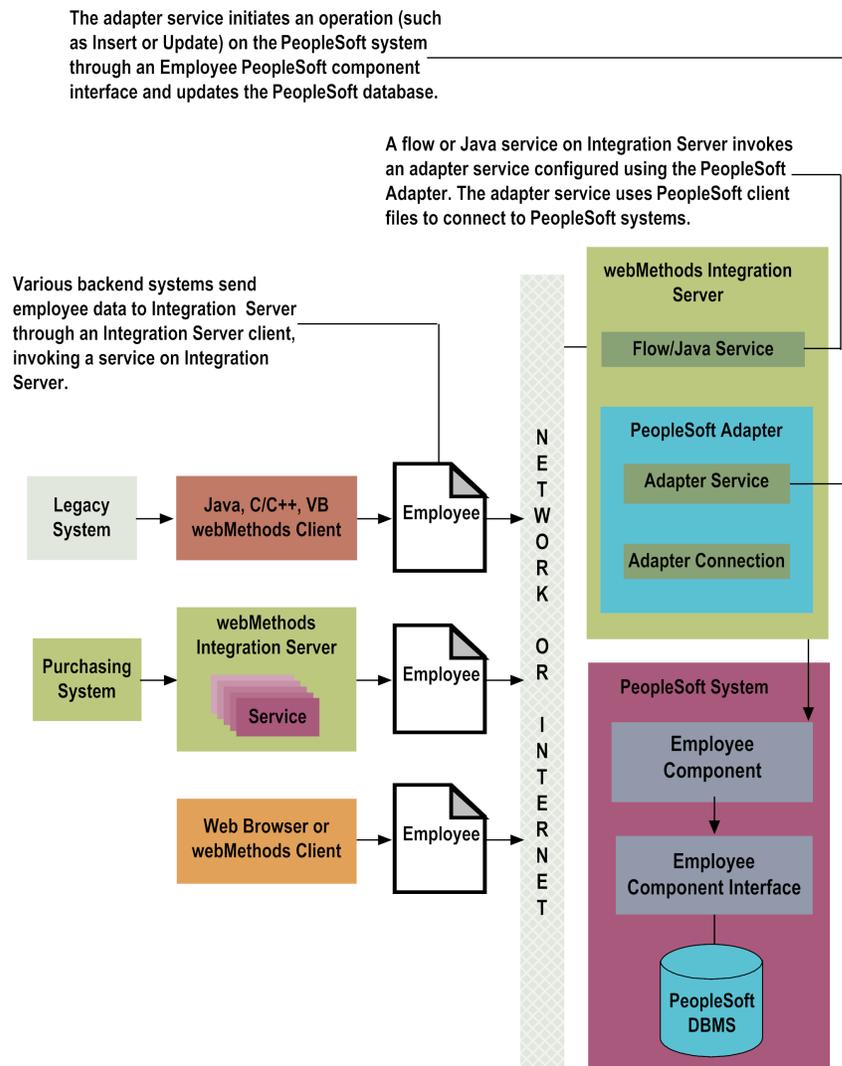
Note:

The properties that are available to the adapter are limited to the properties that are available for the version of PeopleSoft with which you are using the adapter.

A collection is a group of properties that corresponds to a scroll level, its fields, and its subordinate scrolls in the underlying component.

For more information about PeopleSoft components and component interfaces, see the PeopleBooks documentation.

This diagram shows a typical business integration where an adapter service is used to update the PeopleSoft system with employee data. The employee data could be provided by several different types of external Integration Server clients.



For more detailed descriptions of run-time data flow and processing, see the descriptions of the different types of services in [“Adapter Services”](#) on page 16.

Package Management

The PeopleSoft Adapter is provided as a package called WmPeopleSoftAdapter. You manage the adapter package the same way you manage any package on the Integration Server. There are

several considerations regarding how you set up and manage your packages on the Integration Server, such as those described in the following list.

- Create user-defined packages for your connections and adapter services. See “[PeopleSoft Adapter Package Management](#)” on page 36 for details.
- Understand how package dependencies work so you make the best decisions regarding how you manage your connections and adapter services. See “[Package Dependency Requirements and Guidelines](#)” on page 36 for details.
- Control which development groups have access to which adapter services. See “[Group Access Control](#)” on page 38 for details.
- Understand how clustering, an advanced feature of the Integration Server, works to effectively manage your adapter services. See “[PeopleSoft Adapter in a Clustered Environment](#)” on page 38 for details.
- Enable and disable packages. See “[Enabling Packages](#)” on page 37 and “[Disabling Packages](#)” on page 38 for details.

Adapter Connections

The PeopleSoft Adapter uses adapter connections to define how its adapter services connect to PeopleSoft systems. Each PeopleSoft Adapter connection contains a set of connection parameters, including the release of the PeopleTools version to which the adapter will connect, and the logon parameters that the adapter requires to connect to the PeopleSoft system.

You configure PeopleSoft Adapter connections for use with adapter services. You must configure an adapter connection before you can configure an adapter service.

You configure connections using the Integration Server Administrator. For instructions for configuring and managing PeopleSoft Adapter connections, see “[Adapter Connections](#)” on page 43.

Important: You can have only one PeopleSoft Adapter connection enabled at a time. If you have one connection enabled but you need to configure or use a different connection, you must set up your adapter's environment again to work with the new connection. See “[Setting Up Your Adapter's Environment](#)” on page 44 for details. To support using the PeopleSoft Adapter with multiple PeopleSoft instances simultaneously, you must have a separate Integration Server and PeopleSoft Adapter installed and configured for each instance of PeopleSoft.

Connection Pooling

The Integration Server includes a connection management service that dynamically manages connections and connection pools based on configuration settings that you specify for the connection. All adapter services use connection pooling.

A connection pool is a collection of connections with the same set of attributes. The Integration Server maintains connection pools in memory. Connection pools improve performance by enabling adapter services to reuse open connections instead of opening new connections.

Run-Time Behavior of Connection Pools

When you enable a connection, the Integration Server initializes the connection pool, creating the number of connection instances you specified in the connection's **Minimum Pool Size** field. Whenever an adapter service needs a connection, the Integration Server provides a connection from the pool. If no connections are available in the pool, and the maximum pool size has not been reached, the server creates one or more new connections (according to the number specified in **Pool Increment Size**) and adds them to the connection pool. If the pool is full (as specified in **Maximum Pool Size**), the requesting service will wait for the Integration Server to obtain a connection, up to the length of time specified in the **Block Timeout** field, until a connection becomes available. Periodically, the Integration Server inspects the pool and removes inactive connections that have exceeded the expiration period that you specified in the connection's **Expire Timeout** field.

If the connection pool initialization fails, due to a network connection failure or some other type of exception, you can enable the system to retry the initialization any number of times, at specified intervals.

Changing the Connection Associated With an Adapter Service at Design Time

Integration Server provides a built-in service that you can use at design time to change the connection associated with an adapter service. This built-in service, named `setAdapterServiceNodeConnection`, is provided in the WmART package's `pub.art.service` folder. Using this service, you can change the specific connection associated with an adapter service at design time so that you do not need to create and maintain multiple adapter services.

Note:

You can run this built-in service only at design time; do not use it within an Integration Server flow or Java service. You must run this service directly from Designer by selecting and running the service.

For details, see the *webMethods Integration Server Built-In Services Reference* for your release.

Changing the Connection Associated with an Adapter Service at Run Time

The Integration Server enables you to dynamically select the connection a service uses to interact with the adapter's resource. This feature enables one service to interact with multiple, similar backend resources.

For example, a service can be defined to use a default connection that interacts with your company's production database. However, at run time you can override the default connection and instead use another connection to interact with the company's test database.

For more information about overriding a service's default connection at run time, see [“Dynamically Changing a Service's Connection at Run Time” on page 52](#).

Built-In Services For Connections

The Integration Server provides built-in services that enable you to programmatically control connections. You can use them to:

- Enable and disable a connection
- Return usage statistics and the current state (Enabled or Disabled) and error status for a connection
- Change the connection associated with an adapter service (for more information, see [“Changing the Connection Associated With an Adapter Service at Design Time”](#) on page 15).

These services are located in the WmART package, in the `pub.art.connection` folder. For details, see the *webMethods Integration Server Built-In Services Reference* for your release.

Adapter Services

Adapter services enable the PeopleSoft Adapter to perform operations on PeopleSoft systems through the use of PeopleSoft component interfaces. You configure adapter services using adapter service templates, which are provided with the PeopleSoft Adapter. Each template represents a CI operation. For example, the Get service template enables you to configure an adapter service that uses the CI Get method to retrieve user-specified data from a PeopleSoft system. Adapter service templates contain all of the code that is necessary to perform an operation on a PeopleSoft system, but without the PeopleSoft CI data specifications. You provide these specifications when you configure an adapter service.

Configuring a new service from an adapter service template is straightforward. Using Designer, you assign a default adapter connection to the service, select the adapter service template, and supply the service's data specifications.

After you configure a service, you can incorporate it into a flow or Java service to interact with a PeopleSoft component interface. For example, you can create a flow service that collects employee information from another backend system and then call an Insert adapter service within the flow service to insert the employee information into your PeopleSoft system.

You can configure adapter services for PeopleSoft-supplied component interfaces or for custom component interfaces. Before configuring services for custom component interfaces, you must build the APIs for those component interfaces using PeopleSoft's Application Designer. See [“Setting Up Your Adapter's Environment”](#) on page 44 for details.

The PeopleSoft Adapter provides adapter service templates for the following adapter services:

Service Type	Description	See page...
Get	The Get service retrieves a record from PeopleSoft matching the data specifications (keys) you specify.	“Get Services” on page 17

Service Type	Description	See page...
Find	The Find service retrieves a set of records that match the data specifications (keys) you specify.	“Find Services” on page 19
Insert	The Insert service inserts data records into a PeopleSoft system.	“Insert Services” on page 20
Update	The Update service identifies and then updates a record in PeopleSoft.	“Update Services” on page 22
Delete Row	The Delete Row service identifies a child-level record that matches user-specified key criteria, then deletes the record.	“Delete Row Services” on page 25

Using Adapter Services

The following table lists the tasks required to use adapter services:

Task	Use...	
1	Configure an adapter connection. See “Adapter Connections” on page 43 for details.	Integration Server Administrator
2	Select the appropriate adapter service template and configure the adapter service. See “Adapter Services” on page 57 for more information about configuring adapter services.	Designer
3	If you plan to use an Integration Server flow or Java service to invoke the adapter service, design the flow or Java service to use this adapter service. For details, see the <i>webMethods Service Development Help</i> for your release.	Designer
4	Manage the adapter service. See “Package Management” on page 35 , “Adapter Services” on page 57 , and Logging and Exception Handling for details.	Designer and Integration Server Administrator

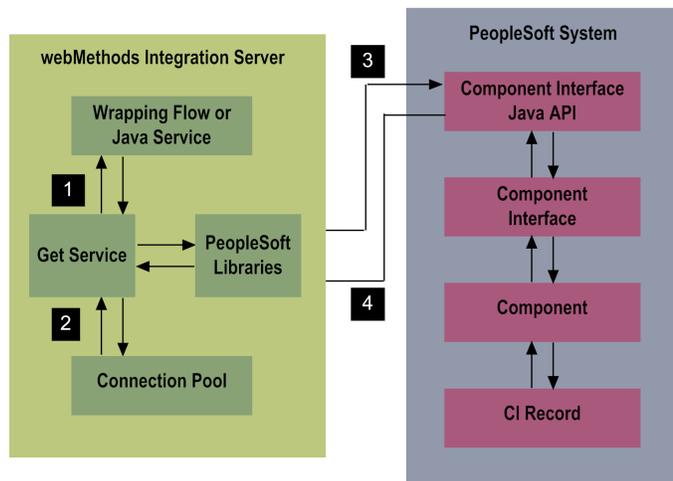
Get Services

The Get service retrieves a record from PeopleSoft that matches the data specifications (keys) you specify. The Get service returns an entire CI record (all levels of the record). That is, the Get service retrieves a parent-level record plus any of that record's child-level records.

Note: The PeopleSoft Adapter does not support scroll-level processing, which is the ability to access particular scroll-level items based on scroll keys. To retrieve child-level records (level 1 or higher), you must specify keys for the record's parent-level record (level 0) in the service's input.

Get Service Run-Time Processing

This diagram illustrates the run-time data processing for the PeopleSoft Adapter's Get service.



Step	Description
1	<p>A flow or Java service, typically invoked by an Integration Server client, initiates the Get service on the Integration Server.</p> <p>You configure the Get service, and the wrapping flow or Java service, using Designer.</p>
2	<p>The Get service retrieves a connection from the service's associated connection pool.</p> <p>You configure and enable the adapter connection using the Integration Server Administrator. For more information about connection pooling, including the run-time behavior of connection pools, see “Connection Pooling” on page 14.</p>
3	<p>The Get service uses the PeopleSoft component interface Java APIs along with PeopleSoft libraries (which you installed in the Integration Server in “Setting Up Your Adapter's Environment” on page 44) to connect to the PeopleSoft system and identify the record to retrieve. The service's input signature includes CI key fields that the service uses to identify the record to retrieve.</p> <p>You define the Get service's input signature when you create the service. Fields that you select on the Key Fields tab in the adapter service template become the service's input signature.</p>
4	<p>The component interface returns the matching record, and any of that record's child-level records, to the Integration Server pipeline in the form of an IData object. The IData object</p>

Step	Description
	preserves the parent-child structure of the CI and consists of the properties that are selected on the service's Output Fields tab.
	<p>Note: If more than one parent-level record matches the keys specified in the service's input, the adapter returns null and the PeopleSoft server issues an error message.</p>

Find Services

The Find service retrieves a set of records from PeopleSoft that match the data specifications (keys) you specify.

When specifying keys, you can specify a full name, a partial name, or you can leave the field empty. If you leave the field empty, the service will retrieve all records. You can also use the wildcard characters supported by PeopleSoft, which are the percent sign character (%) and the underscore character (_).

- Using the percent sign (%) in a field will match a string of zero or more characters. For example: A% matches any string starting with A, including just A.
- Using the underscore character (_) in a field will match any single character. For example: _om matches a string that begins with any character followed by _om, such as Tom or Home.

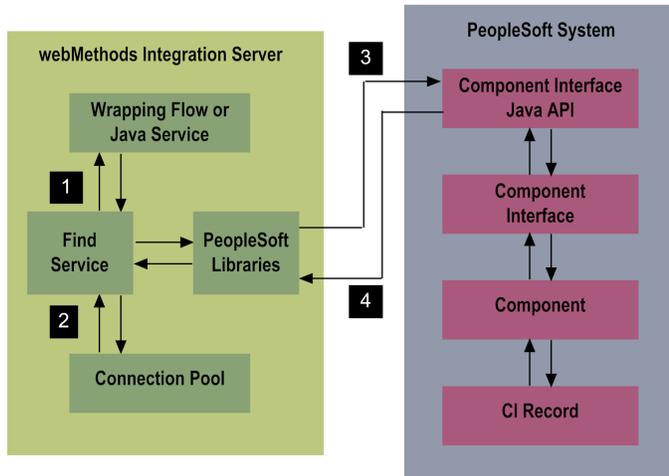
To use one of the PeopleSoft wildcard characters as a literal character in a key field (for example, to include an underscore (_) in your string), precede the character with a backslash character (\). For example: _.

Note:

PeopleSoft allows a Find operation to return a maximum of 300 records. When the operation finds more than 300 records, the adapter returns only the first 300 records, and generates a warning message issued by the PeopleSoft server.

Find Service Run-Time Processing

This diagram illustrates the run-time data processing for the PeopleSoft Adapter's Find service.



Step	Description
1	<p>A flow or Java service, typically invoked by an Integration Server client, initiates the Find service on the Integration Server.</p> <p>You configure the Find service, and the wrapping flow or Java service, using Designer.</p>
2	<p>The Find service retrieves a connection from the service's associated connection pool.</p> <p>You configure and enable the adapter connection using the Integration Server Administrator. For more information about connection pooling, including the run-time behavior of connection pools, see "Connection Pooling" on page 14.</p>
3	<p>The Find service uses the PeopleSoft component interface Java APIs along with PeopleSoft libraries (which you installed in the Integration Server in "Setting Up Your Adapter's Environment" on page 44) to connect to the PeopleSoft system, validate the service's input key fields (collection), and identify the records to retrieve. The service's input signature includes CI key fields that the service uses to identify the records to retrieve.</p> <p>You define the Find service's input signature when you create the service. Fields that you select on the Key Fields tab in the adapter service template become the service's input signature.</p>
4	<p>The component interface returns a set of find keys for zero or more parent-level CI records that match the criteria specified in the Find service's input signature. The service returns the data to the Integration Server pipeline in the form of a document list (IData object).</p> <p>You define the Find service's output signature when you create the service. Fields that you select on the Output Fields tab in the adapter service template become the service's output signature.</p>

Insert Services

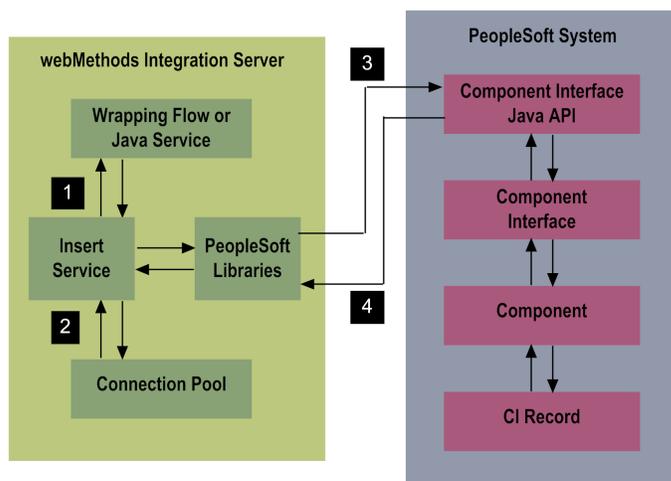
The Insert service inserts data records into a PeopleSoft system.

The following list contains guidelines for using Insert services:

- For the Insert service to run successfully, at least one non-key field must be specified in the service's input signature.
- To insert child-level records successfully, all key fields for the record must be specified in the input signature.
- If the record already exists in the PeopleSoft database, the service throws error message.
- The Insert service enables you to simultaneously insert multiple rows of records of level 1 and up.

Insert Service Run-Time Processing

The following diagram illustrates the run-time data processing for the PeopleSoft Adapter's Insert service.



Step	Description
1	A flow or Java service, typically invoked by an Integration Server client, initiates the Insert service on the Integration Server. You configure the Insert service, and the wrapping flow or Java service, using Designer.
2	The Insert service retrieves a connection from the service's associated connection pool. You configure and enable the adapter connection using the Integration Server Administrator. For more information about connection pooling, including the run-time behavior of connection pools, see “Connection Pooling” on page 14.
3	The Insert service uses the PeopleSoft component interface Java APIs along with PeopleSoft libraries (which you installed in the Integration Server in “Setting Up Your Adapter's Environment” on page 44) to connect to the PeopleSoft system, initiate create keys, and insert the record (including all associated child-level records) into the PeopleSoft system, assigning values to the fields specified in the service's input signature.

Step	Description
	<p>If the service is successful, it executes the standard PeopleSoft Save method. The Save method commits any changes to the database.</p> <p>If the PeopleSoft server throws exceptions while creating or saving records, the adapter will throw those same exceptions. For information about how the adapter handles PeopleSoft errors, see “Handling PeopleSoft Exceptions” on page 104.</p> <p>The service's input signature includes key fields that the component interface requires to be able to insert a record into PeopleSoft, and input fields that the contain additional fields for the record.</p> <p>You define the Insert service's input signature when you create the service. All fields on the Key Fields tab in the adapter service template are included in the service's input signature, and fields that you select on the Input Fields tab, become the service's input signature.</p>
4	<p>The Insert service returns a status document indicating whether or not the service was successful. You can optionally include this status message in the service's output signature. This status is added to the pipeline of the Insert service.</p> <p>You define the Insert service's output signature when you create the service. Select the STATUS option on the Output Fields tab in the adapter service template to include the STATUS message in the service's output signature.</p>

Update Services

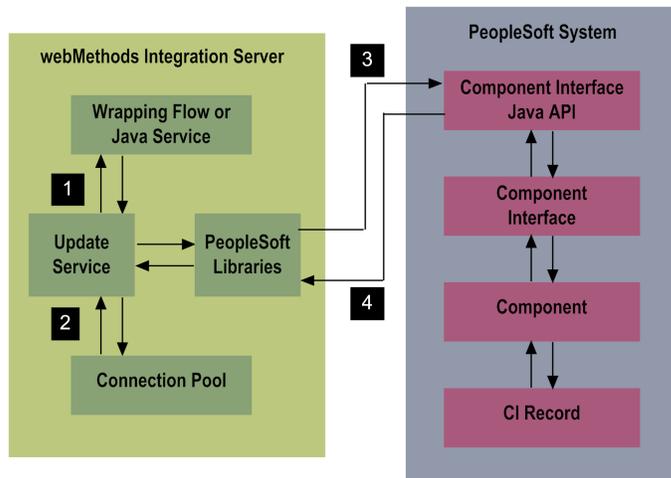
The Update service identifies a specific CI record and then updates all levels of that record in PeopleSoft, as specified in the service. The Update service enables you to simultaneously update multiple rows of child-level (level 1 and up) records.

The Update service supports effective date processing. See [“Effective Date Processing”](#) on page 24 for more information about how Update services process operations with the **Effective Date Processing** option enabled.

Note:The PeopleSoft Adapter does not support scroll-level processing, which is the ability to access particular scroll-level items based on scroll keys, and then update or delete those items in PeopleSoft. To update a child-level record (level 1 or higher), you must specify keys for all of the record's parent-level records in the service's input.

Update Service Run-Time Processing

The following diagram illustrates the run-time data processing for the PeopleSoft Adapter's Update service.



Step	Description
1	<p>A flow or Java service, typically invoked by an Integration Server client, initiates the Update service on the Integration Server.</p> <p>You configure the Update service, and the wrapping flow or Java service, using Designer.</p>
2	<p>The Update service retrieves a connection from the service's associated connection pool.</p> <p>You configure and enable the adapter connection using the Integration Server Administrator. For more information about connection pooling, including the run-time behavior of connection pools, see “Connection Pooling” on page 14.</p>
3	<p>The Update service uses the PeopleSoft component interface Java APIs along with PeopleSoft libraries (which you installed in the Integration Server in “Setting Up Your Adapter's Environment” on page 44) to connect to the PeopleSoft system and then identify and update the specified record.</p> <p>The service allows you to update records at scroll levels 1 and up. Depending on the key values specified in the input signature, the child record is updated as follows:</p> <ul style="list-style-type: none"> ■ If the record already exists in PeopleSoft, the adapter updates it with the new data. ■ If the record does not exist in PeopleSoft, the adapter adds that row, plus all of its child-level rows. <p>If the service is successful, it executes the standard PeopleSoft Save method. The Save method commits any changes to the PeopleSoft database.</p> <p>If the PeopleSoft server throws exceptions while creating or saving records, the adapter will throw those same exceptions. For more information about how the adapter handles PeopleSoft errors, see “Handling PeopleSoft Exceptions” on page 104.</p> <p>You define the Update service's input signature when you create the service. Fields that you select on the Key Fields tab in the adapter service template become the service's input signature.</p>

Step	Description
4	<p>The Update service returns a status document (called STATUS) indicating whether or not the service was successful. You can optionally include this status document in the service's output signature. This status is added to the pipeline of the Update service.</p> <p>You define the Insert service's output signature when you create the service. Select the STATUS option on the Output Fields tab in the adapter service template to include the STATUS message in the service's output signature.</p>

Effective Date Processing

The Update services can access and update effective-dated child-level records according to the date of the record.

A record is defined as effective-dated if the EFFDT property exists in the record. The EFFDT property must be a key. A record does not have to have the EFFSEQ property for the operation to access an effective-dated record. If the EFFSEQ property does not exist, then the operation uses 0 as the sequence number.

The PeopleSoft Adapter takes {EFFDT, Sequence Number} input values and passes them into PeopleSoft API `getEffectiveItem(String date, long seqNum)` to access a record.

The sequence number is equal to the EFFSEQ value or to 0. If a record with the specified EFFDT and sequence number already exists in the database, then the record will be updated. If a record with specified EFFDT and sequence number does not exist in the database, then a new record will be inserted into the database.

For example, if there are three records in the database containing the following dates:

Row #	EFFDT	Sequence Number (EFFSEQ)	COMPRATE
0	06/28/2005	0	15
1	06/17/2005	1	22
2	06/17/2005	0	25

The input parameters are {6/25/2005, 0}. The copy of row 1 will be created and the properties will be updated based on input values. The result of Update operation will be:

Row #	EFFDT	Sequence Number (EFFSEQ)	COMPRATE
0	06/28/2005	0	15
1	06/25/2005	0	22
2	06/17/2005	1	22

Row #	EFFDT	Sequence Number (EFFSEQ)	COMPRATE
3	06/17/2005	0	25

Note:

If a child collection's key set consists of EFFDT along with other properties, only the EFFDT value will be used as a key to access the record for updates.

Delete Row Services

The Delete Row service identifies a child-level record that matches user-specified key criteria, then deletes the record.

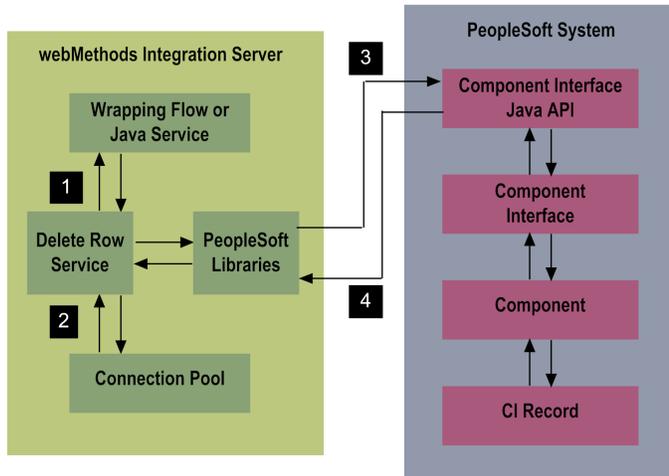
The following list contains guidelines for using Delete Row services:

- The Delete Row service does not support deleting parent-level records.
- The Delete Row service enables you to delete multiple child-level rows based on the keys specified in service's input signature.
- To delete a child-level row, you must specify key values for all of its parent levels. For example, to delete a level 3 record, you must specify key values for its level 1 and level 2 parent-level records.
- If the service's input signature only contains key values for a level 1 record, then the whole level 1 record will be deleted, along with all of its children level records (levels 2 and up).

Note:The PeopleSoft Adapter does not support scroll-level processing, which is the ability to access particular scroll-level items based on scroll keys, and then update or delete those items in PeopleSoft. To delete a child-level record (level 1 or higher), you must specify keys for all of the record's parent-level records in the service's input.

Delete Row Service Run-Time Processing

The following diagram illustrates the run-time data processing for the PeopleSoft Adapter's Delete Row service.



Step	Description
1	<p>A flow or Java service, typically invoked by an Integration Server client, initiates the Delete Row service on the Integration Server.</p> <p>You configure the Delete Row service, and the wrapping flow or Java service, using Designer.</p>
2	<p>The Delete Row service retrieves a connection from the service's associated connection pool.</p> <p>You configure and enable the adapter connection using the Integration Server Administrator. For more information about connection pooling, including the run-time behavior of connection pools, see “Connection Pooling” on page 14.</p>
3	<p>The Delete Row service uses the PeopleSoft component interface Java APIs along with PeopleSoft libraries (which you installed in the Integration Server in “Setting Up Your Adapter's Environment” on page 44) to connect to the PeopleSoft system and identify the parent-level record containing the child-level row to delete.</p> <p>The service's input signature includes CI lookup key fields that the service uses to identify the parent-level record, and delete key fields that the service uses to identify and delete the child-level record.</p> <p>You define the Delete Row service's input signature when you create the service. Fields that you select on the Lookup Key Fields tab in the adapter service template, and fields you select on the Delete Key Fields tab, become the service's input signature.</p>
4	<p>The Delete Row service returns a status document indicating whether or not the service was successful. You can optionally include this status message in the service's output signature. This status is added to the pipeline of the Delete Row service.</p> <p>You define the Delete Row service's output signature when you create the service. Select the STATUS option on the Output Fields tab in the adapter service template to include the STATUS message in the service's output signature.</p>

Step	Description
	You define the Delete Row service's output signature when you create the service. Fields that you select on the Output Fields tab in the adapter service template become the service's output signature.

PeopleSoft-to-webMethods Communications

This section provides an overview of the adapter's PeopleSoft-to-webMethods (outbound) communications.

Note:

For PeopleSoft-to-webMethods communications, the PeopleSoft Adapter supports only the PeopleTools versions specified in the *webMethods Adapters System Requirements*.

For PeopleSoft-to-webMethods communications, the PeopleSoft Adapter takes advantage of PeopleSoft's Application Messaging (Integration Gateway) capabilities to invoke a service or post data on the Integration Server by publishing the appropriate message to the PeopleSoft Integration Broker.

You configure the PeopleSoft Integration Broker's Integration Gateway and define a node to communicate with the Integration Server. When you configure your connector and define the node, you specify an HTTPTARGET connector to post data to the Integration Server.

You specify a message in the PeopleCode program to be executed on a component's savePreChange or savePostChange event. PeopleSoft calls a savePreChange event before any database updates; PeopleSoft calls a savePostChange event after any database updates. You write a PeopleCode program so that it converts the modified record into an XML String. The XML string is sent to the HTTPTARGET connector you configured earlier. The HTTPTARGET connector then posts the XML string to the Integration Server.

A receive service on the specified Integration Server is invoked when data inside a PeopleSoft system is modified, added, deleted, or when any other kind of event occurs that requires invoking a service. The adapter provides a sample flow service that receives the XML data, parses the XML file, interprets the information, and then calls the appropriate service to perform the specified operation. If the PeopleSoft system expects a reply, then a reply XML document can be returned to the PeopleCode program. The PeopleCode program then interprets the returned XML string.

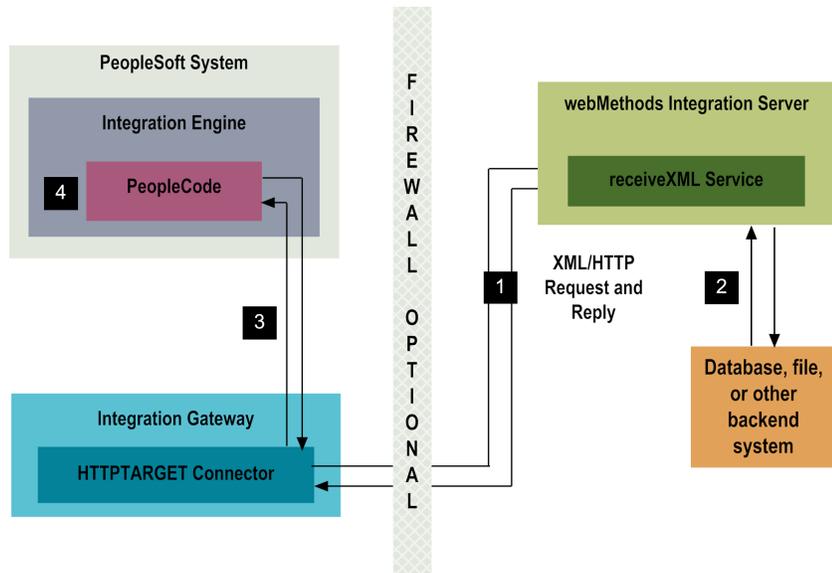
For a description of how PeopleSoft-to-webMethods transactions are processed, see [“PeopleSoft-to-webMethods Run-Time Processing” on page 27](#).

For instructions for creating and using PeopleSoft-to-webMethods operations, see [“PeopleSoft-to-webMethods Communications” on page 79](#).

For more information about Application Messaging and the Integration Broker, see the PeopleBooks documentation.

PeopleSoft-to-webMethods Run-Time Processing

The PeopleSoft Adapter processes PeopleSoft-to-webMethods transactions at run time as follows:



Step	Description
1	When data inside the PeopleSoft system is added, deleted, or modified, or when any other kind of event occurs that you want to have trigger PeopleSoft-to-webMethods communications, an HTTPTARGET Connector on the PeopleSoft system posts an XML document to the webMethods Integration Server.
2	A PeopleSoft Adapter receive service (such as receiveXML) receives the XML data, parses the XML file, interprets the information, and calls the appropriate service to perform the specified operation.
3	The result is returned as a message to the PeopleCode program.
4	The PeopleCode program that receives the XML string then interprets the returned XML string.

Using Version Control Systems to Manage Adapter Elements

The adapter supports the Version Control System (VCS) Integration feature provided by Designer. When you enable the feature in Integration Server, you can check adapter packages or elements into and out of your version control system from Designer. For more information about the VCS Integration feature, see the *Administering the VCS Integration Feature*.

Beginning with Integration Server 8.2 SP3, the adapter supports the local service development feature in Designer. This feature extends the functionality of the VCS Integration feature to check package elements and their supporting files into and out of a VCS directly from Designer. For more information about local service development and how it compares to the VCS Integration feature, see the *webMethods Service Development Help*.

Infrastructure Data Collector Support for the PeopleSoft Adapter

Infrastructure Data Collector monitors the system and operational data associated with webMethods run-time components such as Integration Servers, Broker Servers, Brokers, and adapters, and reports the status of these components on Optimize for Infrastructure or other external tools. When you start monitoring an Integration Server, Infrastructure Data Collector automatically starts monitoring all ART-based adapters that are installed on the Integration Server.

For information about monitored key performance indicators (KPIs) collected for the monitored adapter components, see the *Administering webMethods Optimize* and *webMethods Optimize User's Guide* for your release.

Viewing the Adapter's Update Level

You can view the list of updates that have been applied to the adapter. The list of updates appears in the **Updates** field on the adapter's About page in the Integration Server Administrator.

Controlling Pagination

When using the adapter on Integration Server 8.0 and later, you can control the number of items that are displayed on the adapter Connections screen and Notifications screen. By default, 10 items are displayed per page. Click **Next** and **Previous** to move through the pages, or click a page number to go directly to a page.

To change the number of items displayed per page, set the `watt.art.page.size` property and specify a different number of items.

» To set the number of items per page

1. From Integration Server Administrator, click **Settings > Extended**.
2. Click **Edit Extended Settings**. In the Extended Settings editor, add or update the `watt.art.page.size` property to specify the preferred number of items to display per page. For example, to display 50 items per page, specify:

```
watt.art.page.size=50
```

3. Click **Save Changes**. The property appears in the Extended Settings list.
4. For more information about working with extended configuration settings, see the *webMethods Integration Server Administrator's Guide* for your release.

2 Installing and Uninstalling the PeopleSoft Adapter

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■ Uninstalling PeopleSoft Adapter 6.0	33

Overview

This chapter explains how to install, upgrade, and uninstall webMethods PeopleSoft Adapter 6.0. The instructions use the Software AG Installer and the Software AG Uninstaller wizards. For complete information about the wizards or other installation methods, or to install other webMethods products, see the *Installing webMethods Products On Premises* for your release.

Requirements

For a list of the operating systems, PeopleSoft products, and webMethods products supported by PeopleSoft Adapter 6.0, see the *webMethods Adapters System Requirements*.

PeopleSoft Adapter 6.0 has no hardware requirements beyond those of its host Integration Server.

Installing PeopleSoft Adapter 6.0

Note:

If you are installing the PeopleSoft Adapter in a clustered environment, you must install the adapter on each Integration Server in the cluster, and each installation must be identical. For more information, see the “[PeopleSoft Adapter in a Clustered Environment](#)” on page 38.

➤ To install PeopleSoft Adapter 6.0

1. Download Software AG Installer from the [Empower Product Support Web site](#).
2. If you are installing the adapter on an existing Integration Server, shut down Integration Server.
3. Start the Installer wizard.
 - Choose the webMethods release that includes the Integration Server on which to install the adapter. For example, if you want to install the adapter on Integration Server 7.1, choose the 7.1 release.
 - If you are installing on an existing Integration Server, specify the webMethods installation directory that contains the host Integration Server. If you are installing both the host Integration Server and the adapter, specify the installation directory to use. The Installer will install the adapter in the *Integration Server_directory* \packages directory.
 - In the product selection list, select **Adapters > webMethods PeopleSoft Adapter 6.0**. You can also choose to install documentation.
4. Copy the psjoa.jar file from your PeopleSoft system to the *Integration Server_directory* \packages \WmPeopleSoftAdapter \code \jars directory.
5. After installation is complete, start the host Integration Server.

Uninstalling PeopleSoft Adapter 6.0

> Uninstalling PeopleSoft Adapter 6.0

1. Shut down the host Integration Server. You do not need to shut down any other webMethods products or applications that are running on your machine.
2. The Software AG Uninstaller will not delete any user-defined PeopleSoft Adapter 6.0 components such as connections and adapter services. Because these components will not work without the adapter, delete them manually, either at the file system level or using Software AG Designer. For instructions, see the *webMethods Service Development Help* for your release.
3. Start Software AG Uninstaller, selecting the webMethods installation directory that contains the host Integration Server. In the product selection list, select **Adapters > webMethods PeopleSoft Adapter 6.0**. You can also choose to uninstall documentation.
4. Restart the host Integration Server.
5. Uninstaller removes all PeopleSoft Adapter-related files that were installed. However, Uninstaller does not delete files created after you installed the PeopleSoft Adapter (for example, user-created or configuration files), nor does it delete the adapter directory structure. You can go to the *Integration Server_directory* \packages directory and delete the WmPeopleSoftAdapter directory.

3 Package Management

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- PeopleSoft Adapter Package Management 36
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Overview

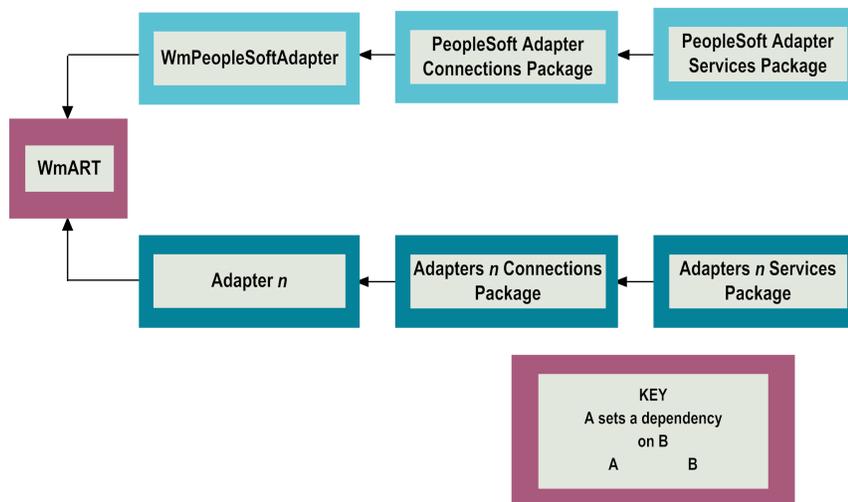
The following sections describe how to set up and manage your PeopleSoft Adapter packages, set up Access Control Lists (ACL), and use the adapter in a clustered environment.

PeopleSoft Adapter Package Management

The PeopleSoft Adapter is provided as a package called WmPeopleSoftAdapter. You manage the WmPeopleSoftAdapter package as you would manage any package on the Integration Server.

When you configure connections and adapter services, define them in user-defined packages rather than in the WmPeopleSoftAdapter package. Doing so will allow you to manage the package more easily.

As you create user-defined packages in which to store connections and adapter services, use the package management functionality provided in Designer and set the user-defined packages to have a dependency on the WmPeopleSoftAdapter package. That way, when the WmPeopleSoftAdapter package loads or reloads, the user-defined packages load automatically. See the following diagram:



Package management tasks include:

- Setting package dependencies (see [“Package Dependency Requirements and Guidelines”](#) on page 36)
- [“Enabling Packages”](#) on page 37
- [“Disabling Packages”](#) on page 38

Package Dependency Requirements and Guidelines

Following are dependency requirements and guidelines for user-defined packages. For instructions for setting package dependencies, see the *webMethods Service Development Help* for your release.

- A user-defined package must have a dependency on its associated adapter package, WmPeopleSoftAdapter.
- The WmPeopleSoftAdapter package has a dependency on the WmART package.

These first two dependencies ensure that at startup the Integration Server automatically loads or reloads all packages in the proper order: the WmART package first, the adapter package next, and the user-defined packages last. The WmART package is automatically installed when you install the Integration Server. You should not need to manually reload the WmART package.

- If the connections and adapter services of an adapter are defined in different packages, then:
 - A package that contains the connections must depend on the adapter package.
 - Packages that contain adapter services must depend on their associated connection package.
- Keep connections for different adapters in separate packages so that you do not create interdependencies between adapters. If a package contains connections for two different adapters, and you reload one of the adapter packages, the connections for both adapters will reload automatically.
- The Integration Server will not allow you to enable a package if it has a dependency on another package that is disabled. That is, before you can enable your package, you must enable all packages on which your package depends. For information about enabling packages, see [“Enabling Packages” on page 37](#).
- The Integration Server will allow you to disable a package even if another package that is enabled has a dependency on it. Therefore, you must manually disable any user-defined packages that have a dependency on the adapter package before you disable the adapter package. For information about disabling packages, see [“Disabling Packages” on page 38](#).
- You can name connections and adapter services the same names provided that they are located in different packages and folders.

Enabling and Disabling Packages

Important:

Before you manually enable a user-defined package, you must first enable its associated adapter package (WmPeopleSoftAdapter). Similarly, if your adapter has multiple user-defined packages, and you want to disable some of them, disable the adapter package first. Otherwise, errors will be issued when you try to access the remaining enabled user-defined packages.

Enabling Packages

All packages are automatically enabled by default.

➤ **To enable a package**

1. Open the Integration Server Administrator if it is not already open.

2. In the **Packages** menu of the navigation area, click **Management**.
3. Click **No** in the **Enabled** column. The server displays a ✓ and **Yes** in the **Enabled** column.

Note:

Enabling an adapter package will not cause its associated user-defined packages to be reloaded.

Disabling Packages

When you want to temporarily prohibit access to the elements in a package, disable the package. When you disable a package, the server unloads all of its elements from memory. Disabling a package prevents the Integration Server from loading that package at startup.

A disabled adapter will:

- Remain disabled until you explicitly enable it using the Integration Server Administrator.
- Not be listed in Designer.

> To disable a package

1. Open the Integration Server Administrator if it is not already open.
2. In the **Packages** menu of the navigation area, click **Management**.
3. Click **Yes** in the **Enabled** column for the package that you want to disable. The server issues a prompt to verify that you want to disable the package. Click **OK** to disable the package. When the package is disabled, the server displays **No** in the **Enabled** column.

Group Access Control

To control which development group has access to which adapter services, use access control lists (ACLs). You can use ACLs to prevent one development group from inadvertently updating the work of another group, or to allow or deny access to services that are restricted to one group but not to others.

For general information about assigning and managing ACLs, see the *webMethods Service Development Help* for your release.

PeopleSoft Adapter in a Clustered Environment

What is webMethods Integration Server Clustering?

Clustering is an advanced feature of the webMethods product suite that substantially extends the reliability, availability, and scalability of webMethods Integration Server. Clustering accomplishes this by providing the infrastructure and tools to deploy multiple Integration Servers as if they

were a single virtual server and to deliver applications that leverage that architecture. Because this activity is transparent to the client, clustering makes multiple servers look and behave as one.

For details on webMethods Integration Server clustering, see the *webMethods Integration Server Clustering Guide* for your release.

Integration Server 8.2 SP2 and higher supports the caching and clustering functionality provided by Terracotta. Caching and clustering are configured at the Integration Server level and PeopleSoft Adapter uses the caching mechanism that is enabled on Integration Server.

With clustering, you get the following benefits:

- **Load balancing.** This feature, provided automatically when you set up a clustered environment, allows you to spread the workload over several servers, thus improving performance and scalability.
- **Failover support.** Clustering enables you to avoid a single point of failure. If a server cannot handle a request, or becomes unavailable, the request is automatically redirected to another server in the cluster.

Note: webMethods Integration Server clustering redirects HTTP and HTTPS requests, but does not redirect FTP or SMTP requests.

- **Scalability.** You can increase your capacity even further by adding new machines running webMethods Integration Server to the cluster.

Configuring the PeopleSoft Adapter For Clustering

When you configure the PeopleSoft Adapter, you must:

- Ensure that each Integration Server in the cluster contains an identical set of packages. See [“Replicating Packages to webMethods Integration Servers” on page 39](#).
- Disable the redirection capability for certain predefined administrative services. See [“Disabling the Redirection of Administrative Services” on page 39](#).

Replicating Packages to webMethods Integration Servers

Each Integration Server in the cluster should contain an identical set of packages that you define using the PeopleSoft Adapter. That is, you should replicate the PeopleSoft Adapter services and the connections they use.

To ensure consistency, you should create all packages on one server, and replicate them to the other servers. If you allow different servers to contain different services, you might not derive the full benefits of clustering. For example, if a client requests a service that resides in only one server, and that server is unavailable, the request cannot be successfully redirected to another server.

For information about replicating packages, see the *webMethods Integration Server Administrator’s Guide* for your release. See also [“Requirements for Each Integration Server in a Cluster” on page 40](#).

Disabling the Redirection of Administrative Services

As previously mentioned, a server that cannot handle a client's service request can automatically redirect the request to another server in the cluster. However, the PeopleSoft Adapter uses certain predefined administrative services that you should not allow to be redirected. These services are used internally when you configure the adapter. If you allow these services to be redirected, your configuration specifications might be saved on multiple servers, which is an undesirable result. For example, if you configure two PeopleSoft Adapter services, one might be stored on one server, while the other one might be stored on another server. Remember that all adapter services must reside on all Integration Servers in the cluster.

> To disable the redirection of administrative services

1. Shut down the Integration Server Administrator. For the procedure to do this, see the *webMethods Integration Server Administrator's Guide* for your release.

2. Edit the following file:

Integration Server_directory \config\redir.cnf

3. Add the following line to the file:

```
<value name="wm.art">false</value>
```

4. Save the file and restart the Integration Server.

Clustering Considerations and Requirements

Note:

The following sections assume that you have already configured the webMethods Integration Server cluster. For details about webMethods clustering, see the *webMethods Integration Server Clustering Guide* for your release.

The following considerations and requirements apply to the PeopleSoft Adapter in a clustered environment.

Requirements for Each Integration Server in a Cluster

The following table describes the requirements for each Integration Server in a cluster:

All Integration Servers For Example ... in a given cluster must have identical...

Integration Server versions	One Integration Server in the cluster cannot be version 6.5 and another Integration Server in the cluster be version 8.0.
Adapter packages	All adapter packages on one Integration Server should be replicated to all other Integration Servers in the cluster, as described in “Replicating Packages to webMethods Integration Servers” on page 39.

All Integration Servers For Example ... in a given cluster must have identical...

Adapter connections If you configure a connection to the database, this connection must appear on all servers in the cluster so that any Integration Server in the cluster can handle a given request identically.

If you plan to use connection pools in a clustered environment, see [“Considerations When Configuring Connections with Connection Pooling Enabled” on page 41](#).

Adapter services Each adapter service must appear on all servers in the cluster so that any Integration Server in the cluster can handle the request identically.

If you allow different Integration Servers to contain different services, you might not derive the full benefits of clustering. For example, if a client requests a service that resides on only one server, and that server is unavailable, the request cannot be successfully redirected to another server.

Considerations When Installing PeopleSoft Adapter Packages

For each Integration Server in the cluster, use the standard PeopleSoft Adapter installation procedures for each machine, as described in [“Installing and Uninstalling the PeopleSoft Adapter” on page 31](#).

Considerations When Configuring Connections with Connection Pooling Enabled

When you configure a connection that uses connection pools in a clustered environment, be sure that you do not exceed the total number of connections that can be opened simultaneously for that database.

For example, if you have a cluster of two Integration Servers with a connection configured to a database that supports a maximum of 100 connections opened simultaneously, the total number of connections possible at one time must not exceed 100. This means that you cannot configure a connection with an initial pool size of 100 and replicate the connection to both servers, because there could be possibly a total of 200 connections opened simultaneously to this database.

In another example, consider a connection configured with an initial pool size of 10 and a maximum pool size of 100. If you replicate this connection across a cluster with two Integration Servers, it is possible for the connection pool size on both servers to exceed the maximum number of database connections that can be open at one time.

For information about configuring connections for the PeopleSoft Adapter, see [“Configuring Adapter Connections” on page 47](#).

For more general information about connection pools, see the *webMethods Integration Server Administrator’s Guide* for your release.

4 Adapter Connections

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Overview

This chapter describes how to configure and manage PeopleSoft Adapter connections. For more information about how adapter connections work, see [“Adapter Connections” on page 14](#).

Important:

For the PeopleSoft Adapter, you can have only one connection enabled at a time. If you have one connection enabled but you want to use a different connection, you must disable the current connection and follow the instructions in [“Setting Up Your Adapter's Environment” on page 44](#) to set up your adapter's environment to work with the new connection.

Before Configuring or Managing Adapter Connections

Important:

Make sure you have webMethods administrator privileges so that you can access the PeopleSoft Adapter's administrative screens. For information about setting user privileges, see the *webMethods Integration Server Administrator's Guide* for your release.

➤ **To prepare to configure or manage adapter connections**

1. Install the webMethods Integration Server and the PeopleSoft Adapter on the same machine. See [“Installing and Uninstalling the PeopleSoft Adapter ” on page 31](#) for details.
2. Set up your adapter's environment to work with the component interfaces on your PeopleSoft system. See [“Setting Up Your Adapter's Environment” on page 44](#).
3. Start your Integration Server and the Integration Server Administrator, if they are not already running.
4. Using the Integration Server Administrator, make sure the WmPeopleSoftAdapter package is enabled. See [“Enabling Packages” on page 37](#) for instructions.
5. Using Designer, create a user-defined package to contain the connection, if you have not already done so. For more information about managing packages for the adapter, see [“ PeopleSoft Adapter Package Management” on page 36](#).

Setting Up Your Adapter's Environment

You must set up your adapter's environment to enable the adapter to interface with the component interfaces on your PeopleSoft system. Specifically, the adapter requires access to the following PeopleSoft files:

- psjoa.jar
- pstools.properties
- Compiled component interface class files

The following procedures describe how to make these files accessible to the adapter.

Complete the steps in these procedures before you configure a new connection, before you update an existing connection, or if you have added or changed CIs on your PeopleSoft system.

Because the adapter requires access to these PeopleSoft files (which are unique to each PeopleSoft system), you can only enable one PeopleSoft Adapter connection at a time. If you need to configure or modify another connection, you must complete the steps in this section again for that connection.

» To set up the adapter's environment to work with your PeopleSoft system

1. Disable the WmPeopleSoftAdapter package. See [“Disabling Packages” on page 38](#) if you need instructions.
2. Copy your PeopleSoft system's `psjoa.jar` file to the *Integration Server_directory* \packages\WmPeopleSoftAdapter\code\jars directory.

You can locate the `psjoa.jar` file in the directory where you installed the PeopleSoft system. For example: `PT8.42\web\psjoa\psjoa.jar`.

3. Copy your PeopleSoft system's `pstools.properties` file to the *Integration Server_directory* \packages\WmPeopleSoftAdapter\code\classes directory.

You can locate the `pstools.properties` file in one of the following locations, depending on the version of PeopleTools you are using:

- For PeopleTools 8.1x:

```
<PeopleSoft_directory>\web\jmac
```

where *<PeopleSoft_directory>* is the PeopleSoft home directory.

- For PeopleTools 8.4x with WebSphere:

```
<WebSphere_directory>\installedApps\peoplesoft\applications\PORTAL\WEB-INF\psftdocs\ps
```

where *<WebSphere_directory>* is the root directory for the WebSphere application server.

For example:

```
<WebSphere_directory>\installedApps\peoplesoft\applications\PORTAL\WEB-INF\psftdocs\ps
```

- For PeopleTools 8.4x with WebLogic:

```
<WebLogic_directory>\config\peoplesoft\applications\PORTAL\WEB-INF\psftdocs\ps
```

where *<WebLogic_directory>* is the root directory for the WebLogic application server.

For example:

```
<WebLogic_directory>\config\peoplesoft\applications\PORTAL\WEB-INF\psftdocs\ps
```

4. Add your compiled component interface .class files to a .zip file called PeopleSoft.zip. For instructions on generating and compiling your component interface files, see [“Generating Component Interface Class Files”](#) on page 46.

Include the following directory structure in the .zip file: PeopleSoft\Generated\CompIntfc. Then, add the PeopleSoft.zip file to the following location:

```
Integration Server_directory \packages\WmPeopleSoftAdapter\code\jars\
```

Note:

You can name the .zip file any name you want, but Software AG recommends you name the file PeopleSoft.zip to simplify management of your CI class files. If you have multiple .zip files in the directory and the same CI class files are present in both .zip files, the adapter uses the first occurrence.

5. Enable the WmPeopleSoftAdapter package.

Generating Component Interface Class Files

➤ To generate Component interface class files

1. Logon to the PeopleSoft Application Designer using the same user ID and password that you will use with your PeopleSoft Adapter connection.
2. Test the component interface using the PeopleSoft Application Designer. If the test succeeds, then continue with the procedure. If the test fails, check the following:
 - a. Check whether the CI has the correct authorization.
 - b. Make sure that all of the CI's properties are valid.
 - c. Re-generate the component interface.

See the PeopleBooks documentation for instructions on how to set authorization, validate component interfaces, and create new component interfaces.

3. In the PeopleSoft Application Designer, select **Build > PeopleSoft APIs**. Then, on the Build APIs Bindings screen:
 - a. Disable all of the options except the **Java Classes Build** option.
 - b. Specify the directory where the built Java APIs are located; for example, c:\PT8.42\web\extapi.
 - c. Highlight the required component interface files or all files.

- d. Click **OK**.
4. Navigate to the directory where the Java files are located and compile all of the Java files using the **psjoa.jar file in classpath** option. For example:

```
javac -classpath c:\PT8.42\web\psjoa\psjoa.jar c:\PT8.42\web\extapi\*.java
```

5. Move the compiled .class files to a directory accessible to the adapter, as described in [“Setting Up Your Adapter's Environment” on page 44](#).

Configuring Adapter Connections

When you configure PeopleSoft Adapter connections, you specify information that the Integration Server uses to connect to a PeopleSoft system. You configure PeopleSoft Adapter connections using the Integration Server Administrator.

› To configure a connection

1. In the **Adapters** menu in the Integration Server Administrator navigation area, click **PeopleSoft Adapter**.
2. On the Connections screen, click **Configure New Connection**.
3. On the Connection Types screen, click **PeopleSoft Connection** to display the Configure Connection Type screen.
4. In the **PeopleSoft Adapter Connection** section, provide values for the following fields.

Parameter	Description/Action
Package	<p>Package in which to configure the connection.</p> <p>You must create the package using Designer before you can specify it for this parameter. For general information about creating packages, see the <i>webMethods Service Development Help</i> for your release.</p> <div style="background-color: #f0f0f0; padding: 5px;"> <p>Note: Configure the connection in a user-defined package rather than in the adapter's package. See “Package Management” on page 35 for other important considerations when creating packages for use with the PeopleSoft Adapter.</p> </div>
Folder Name	Folder in which to configure the connection.
Connection Name	Name you want to give the connection. Connection names cannot have spaces or use special characters reserved by the Designer. For more

Parameter	Description/Action
	information about the use of special characters in package, folder, and element names, see the <i>webMethods Service Development Help</i> for your release.

5. In the **Connection Properties** section, provide values for the following fields:

Parameter	Description/Action
PeopleSoft Application Host Name or IP Address	Host name or IP address of the machine on which your PeopleSoft Application Server is running.
PeopleSoft Application Server Port	Port number of the PeopleSoft Application Server. Default value is 9000.
User ID	User name that you use on your PeopleSoft Signon window.
Password	Password that you use on your PeopleSoft Signon window.
Domain Password	Optional. Domain connection password to add an extra layer of security between the application server domain and the connections created.
Language Code (optional)	PeopleSoft language code that the adapter uses to create all PeopleSoft sessions with locale-specific information. Default: Blank. The PeopleSoft system will use the base Locale and base tables for all transactions. Note: See “PeopleSoft Country Codes and Language Codes” on page 51 for PeopleSoft Language Codes and equivalent ISO Locales.
Country Code (optional)	PeopleSoft country code that the adapter uses to create all PeopleSoft sessions with locale-specific information. Default: Blank. The PeopleSoft system will use the base Locale and base tables for all transactions. See “PeopleSoft Country Codes and Language Codes” on page 51 for PeopleSoft Language Codes and equivalent ISO Locales.
PeopleTools Version	PeopleTools version of the backend PeopleSoft application server. Default: PeopleTools version of the psjoe.jar file used.
Enable List Of All Available CIs	Enables the adapter service templates to provide a list of all available CIs for you to choose when configuring a service.

Parameter	Description/Action
	<p>If you select <code>FALSE</code>, you must type the exact name of the CI you want the adapter service to use on the Component Interface tab when you configure the adapter service.</p> <p>If you select <code>TRUE</code>, each PeopleSoft Adapter service template displays a list of all available CIs on the PeopleSoft system. You can select a CI from the list when you configure the adapter service. Selecting this option has the following effects on adapter service configuration and on connections:</p> <ul style="list-style-type: none"> ■ The first time you configure an adapter service with the connection, it might take a long time to generate a list of all available CIs. Subsequent service configurations will not be affected. ■ It takes a longer amount of time to reconnect to the PeopleSoft application server. ■ If the PeopleSoft system contains CIs with errors, all of the errors will appear in the Integration Server console. <p>Note: If you are using this adapter with PeopleTools 8.18 and there are errors in the CIs, the list is not displayed. Software AG recommends that you not select this option if you are using the adapter with PeopleTools 8.18.</p> <p>To configure adapter services successfully, all classes of the selected CI must be included in the <code>PeopleSoft.zip</code> file that is located in the <code>WmPeopleSoftAdapter\code\jars</code> directory.</p> <p>If the CI is available in the list but is not included in the <code>PeopleSoft.zip</code> file, you will receive the error "Can not find component interface...". For more information about the <code>PeopleSoft.zip</code> file, see "Configuring Adapter Connections" on page 47.</p>

6. In the **Connection Management Properties** section, provide values for the following fields:

Field	Description/Action
Enable Connection Pooling	<p>Enables the adapter to use connection pooling. Default: true.</p> <p>See "Adapter Connections" on page 14 for more information about connection pooling.</p> <p>Note: If you plan to enable connection pooling in a clustered environment, consider the connection pool size. For details, see "Considerations When Configuring Connections with Connection Pooling Enabled" on page 41.</p>

Field	Description/Action
Minimum Pool Size	If connection pooling is enabled, this field specifies the minimum number of connection objects that remain in the connection pool at all times. When the adapter creates the pool, it create this number of connections. Default: 1 .
Maximum Pool Size	Maximum number of connection objects that can exist in the connection pool. When the connection pool has reached its maximum number of connections, the adapter will reuse any inactive connections in the pool or, if all connections are active, it will wait for a connection to become available. Default: 10 .
Pool Increment Size	If connection pooling is enabled, this field specifies the number of connections by which the pool will be incremented if connections are needed, up to the maximum pool size. Default: 1 .
Block Timeout	<p>If connection pooling is enabled, this field specifies the number of milliseconds that the Integration Server will wait to obtain a connection with the database before it times out and returns an error.</p> <p>For example, you have a pool with Maximum Pool Size of 20. If you receive 30 simultaneous requests for a connection, 10 requests will be waiting for a connection from the pool. If you set the Block Timeout to 5000, the 10 requests will wait for a connection for 5 seconds before they time out and return an error. If the services using the connections require 10 seconds to complete and return connections to the pool, the pending requests will fail and return an error message stating that no connections are available.</p> <p>If you set the Block Timeout value too high, you may encounter problems during error conditions. If a request contains errors that delay the response, other requests will not be sent. This setting should be tuned in conjunction with the Maximum Pool Size to accommodate such bursts in processing.</p>
Expire Timeout	<p>If connection pooling is enabled, this field specifies the number of milliseconds that an inactive connection can remain in the pool before it is closed and removed from the pool.</p> <p>The connection pool will remove inactive connections until the number of connections in the pool is equal to the Minimum Pool Size. The inactivity timer for a connection is reset when the connection is used by the adapter.</p> <p>If you set the Expire Timeout value too high, you may have a number of unused inactive connections in the pool. This consumes local memory and a connection on your backend resource. This could have an adverse effect if your resource has a limited number of connections.</p> <p>If you set the Expire Timeout value too low, performance could degrade because of the increased activity of creating and closing connections. This setting should be tuned in conjunction with the Minimum Pool Size to avoid excessive opening/closing of connections during normal processing.</p>

Field	Description/Action
Startup Retry Count	Number of times that the system should attempt to initialize the connection pool at startup if the initial attempt fails. Default: 0 (a single attempt).
Startup Backoff Timeout	Number of seconds that the system should wait between attempts to initialize the connection pool. This field is irrelevant if Startup Retry Count is 0 . Startup Backoff Timeout's default is 10 .

7. Click **Save Connection**.

The connection you configured appears on the adapter's Connections screen and in Designer.

By default, when you configure a connection, it is not enabled. For information about enabling connections, see [“Enabling Adapter Connections” on page 55](#).

PeopleSoft Country Codes and Language Codes

The following table provides a partial list of country codes and language codes. To find a complete list of country codes and language codes, see your `pstools.properties` file or check your PeopleSoft system.

Language Code	Country Code	Description	Corresponding ISO Locale
CFR	CA	Canadian French	fr_CA
DUT	BE	Dutch	nl_BE
ENG	US	US English	en_US, en_GB
ESP	ES	Spanish	es_ES, es_AR, es_CO, es_MX
FRA	AR	French	fr_FR, fr_BE, fr_CH
GER	DE	German	de_DE, de_AT, de_AU, de_CH
GRK	EL	Greek	el_EL
INE	GB	International English	en_GB
ITA	IT	Italian	it_IT, it_CH
JPN	JP	Japanese	ja_JP
KOR	KR	Korean	kr_KR
POR	BR	Portuguese	pt_BR

Dynamically Changing a Service's Connection at Run Time

You can run a service using a connection other than the default connection that was associated with the service when the service was created. To override the default, you must code your flow to pass a value through the pipeline into a service's `$connectionName` field.

For example, you have a flow whose primary purpose is to update the data of a component interface (CI) in a PeopleSoft system. However, you want the flow to have the capability to update the CI in a test PeopleSoft system - with the decision of which PeopleSoft system to update to be made programmatically at run time. The output signature of the flow's first service contains a field called `Target`. The flow could branch based on the value in `Target`. If `Target` contains the value `Production`, the second service in the flow would ignore `$connectionName`-thus using its default connection to connect to (and then update) the production PeopleSoft system CI. However, if `Target` contains the value `Test`, the second service in the flow would use the value in the `$connectionName` from the pipeline and connect to (and then update) the test PeopleSoft system CI.

Keep in mind these restrictions when using dynamic connections:

- Both connections - the default and override - must use the same PeopleSoft component interface.
- The `$connectionName` field is present only in services created with Designer

For more information, see [“Changing the Connection Associated with an Adapter Service at Run Time” on page 15](#).

Viewing Adapter Connection Parameters

You can view a connection's parameters from the Integration Server Administrator or from Designer.

Viewing Connection Parameters from the Integration Server Administrator

➤ To view the parameters for a connection using the Integration Server Administrator

1. In the **Adapters** menu in the Integration Server Administrator navigation area, click **PeopleSoft Adapter**.

When using the adapter with Integration Server 8.0 and later, you can sort and filter the list of connections that appears on the Connections screen.

- To sort information on the Connections screen, click the **Up** and **Down** arrows at the top of the column you want to sort.
- To filter the list of connections:
 1. On the Connections screen, click **Filter Connections**.
 2. Type the criterion by which you want to filter into the **Filter criteria** box. Filtering is based on the node name, not the connection alias. To locate all connections containing

specific alphanumeric characters, use asterisks (*) as wildcards. For example, if you want to display all connections containing the string "abc", type *abc* in the **Filter criteria** box.

3. Click **Submit**. The Connections screen displays the connections that match the filter criteria.
4. To re-display all connections, click **Show All Connections**.

The Connections screen appears, listing all the current connections. You can control the number of connections that are displayed on this screen. For more information, see [“Controlling Pagination” on page 29](#).

2. On the Connections screen, click the  icon for the connection you want to see.

The View Connection screen displays the parameters for the connection. For descriptions of the connection parameters, see [“Configuring Adapter Connections” on page 47](#).

3. Click **Return to PeopleSoft Adapter Connections** to return to the main connections screen.

Viewing Connection Parameters from Designer

➤ To view the parameters for a connection using Designer

1. From the Designer navigation area, open the package and folder in which the connection is located.
2. Double-click the connection you want to view.

The parameters for the connection appear on the **Connection Information** tab. For descriptions of the connection parameters, see [“Configuring Adapter Connections” on page 47](#).

Editing Adapter Connections

If you add or change the CIs on your PeopleSoft system, you must update your connection. You edit adapter connections using the Integration Server Administrator.

➤ To edit a connection

1. In the **Adapters** menu in the Integration Server Administrator navigation area, click **PeopleSoft Adapter**.
2. Make sure that the connection is disabled before editing it. See [“Disabling Adapter Connections” on page 55](#) for instructions.
3. On the Connections screen, click the **Edit** icon  for the connection you want to edit.

The Edit Connection screen displays the current parameters for the connection. Update the connection's parameters by typing or selecting the values you want to specify.

For descriptions of the connection parameters, see [“Configuring Adapter Connections” on page 47](#).

4. Click **Save Changes** to save the connection and return to the Connections screen.

Copying Adapter Connections

You can copy an existing PeopleSoft Adapter connection to configure a new connection with the same or similar connection properties without having to re-type all of the properties for the connection. You copy adapter connections using the Integration Server Administrator.

> To copy a connection

1. In the **Adapters** menu in the Integration Server Administrator navigation area, click **PeopleSoft Adapter**.
2. On the Connections screen, click the  icon for the connection you want to copy.

The Copy Connection screen displays the current parameters for the connection you want to copy. Name the new connection, specify a Package Name and Folder Name, and edit any connection parameters as needed by typing or selecting the values you want to specify.

Note:

When you copy a connection, the new connection does not save the password of the original connection. You must enter and then retype the password before you can save the new connection.

For descriptions of the connection parameters, see [“Configuring Adapter Connections” on page 47](#).

3. Click **Save Connection** to save the connection and return to the Connections screen.

Deleting Adapter Connections

If you no longer want to use a particular PeopleSoft Adapter connection, you can delete it by following the instructions in this section. You delete adapter connections using the Integration Server Administrator.

If you delete a PeopleSoft Adapter connection, the adapter services that are defined to use the connection will no longer work. However, you can assign a different connection to an adapter service and re-use the service. To do this, you use the built-in webMethods service `pub.art.service:setAdapterServiceNodeConnection`. For more information, see [“Changing the Connection Associated With an Adapter Service at Design Time” on page 15](#).

> To delete a connection

1. In the **Adapters** menu in the Integration Server Administrator navigation area, click **PeopleSoft Adapter**.
2. Make sure that the connection is disabled before deleting. To disable the connection, click **Yes** in the **Enabled** column and click **OK** to confirm. The Enabled column now shows **No** (disabled) for the connection.
3. On the Connections screen, click **X** for the connection you want to delete.

The Integration Server deletes the adapter connection.

Enabling Adapter Connections

A PeopleSoft Adapter connection must be enabled before you can configure any adapter service using the connection, or before an adapter service can use the connection at run time. You enable adapter connections using the Integration Server Administrator.

Note:

When you reload a package that contains enabled connections, the connections will automatically be enabled when the package reloads. If the package contains connections that are disabled, they will remain disabled when the package reloads.

> To enable a connection

1. In the **Adapters** menu in the Integration Server Administrator navigation area, click **PeopleSoft Adapter**.
2. On the Connections screen, click **No** in the **Enabled** column for the connection you want to enable.

The Integration Server Administrator enables the adapter connection and displays a **✓** and **Yes** in the **Enabled** column.

Disabling Adapter Connections

PeopleSoft Adapter connections must be disabled before you can edit or delete them. You disable adapter connections using the Integration Server Administrator.

> To disable a connection

1. In the **Adapters** menu in the Integration Server Administrator navigation area, click **PeopleSoft Adapter**.
2. On the Connections screen, click **Yes** in the **Enabled** column for the connection you want to disable.

The adapter connection becomes disabled and you see a **No** in the **Enabled** column.

5 Adapter Services

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Overview

This chapter describes how to configure and manage PeopleSoft Adapter services. For detailed descriptions of the available PeopleSoft Adapter services, see [“Adapter Services” on page 16](#).

Before Configuring or Managing Adapter Services

Important:

Make sure you have webMethods administrator privileges so that you can access the PeopleSoft Adapter's administrative screens. For information about setting user privileges, see the *webMethods Integration Server Administrator's Guide* for your release.

➤ **To prepare to configure or manage PeopleSoft Adapter services**

1. Start your Integration Server and the Integration Server Administrator, if they are not already running.
2. Using the Integration Server Administrator, make sure the WmPeopleSoftAdapter package is enabled. See [“Enabling Packages” on page 37](#) for instructions.
3. Using the Integration Server Administrator, configure an adapter connection to use with the adapter service. See [“Configuring Adapter Connections” on page 47](#) for instructions.
4. Start Software AG Designer if it is not already running.

Note:

If you are using Designer, use the Service Development perspective. For more information, see the *webMethods Service Development Help* for your release.

5. Using Designer, create a user-defined package to contain the service, if you have not already done so. When you configure adapter services, you should always define them in user-defined packages rather than in the WmPeopleSoftAdapter package. For more information about managing packages for the adapter, see [“Package Management” on page 35](#).

Configuring Get Services

Get services enable the adapter to retrieve a single CI record from a PeopleSoft database. For more information about Get services, see [“Get Services” on page 17](#). You configure PeopleSoft Adapter services using Designer.

➤ **To configure a Get service**

1. Review the steps in [“Before Configuring or Managing Adapter Services” on page 58](#).
2. Start Designer.

3. Perform the following:
 - a. Right-click the package in which the service should be contained and select **New > Adapter Service**.
 - b. Select the parent namespace and type a name for the adapter service.
 - c. Click **Next**.
4. Select **PeopleSoft Adapter** as the adapter type and click **Next**.
5. Select the appropriate **Adapter Connection Name** and click **Next**.
6. From the list of available templates, select the **Get** template.
7. Click **Finish**.

The adapter service editor for the Get service appears. You can select the **Adapter Settings** tab at any time to confirm adapter service properties such as the **Adapter Name**, **Adapter Connection Name**, and **Adapter Service Template**, as necessary.

8. Select the **Component Interface** tab, if it is not already selected, to specify the PeopleSoft CI to use with the Get service. Specify values for the following fields:

Parameter	Description/Action
Component Interface Name	<p data-bbox="586 1136 1481 1209">Specify the name of the CI with which the adapter service will interface, as follows:</p> <ul style="list-style-type: none"> <li data-bbox="586 1230 1481 1335">■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to TRUE, you can select the CI from a list of all available CIs on the PeopleSoft system. <p data-bbox="586 1356 1481 1503">The list of CIs reflects all CIs on the PeopleSoft system. However, the adapter service will only work if the CI's .class files are present in the PeopleSoft.zip in the Integration Server directory. See “Setting Up Your Adapter's Environment” on page 44 for details.</p> <ul style="list-style-type: none"> <li data-bbox="586 1524 1481 1629">■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to FALSE, you must type the name of the CI. This field is case sensitive. <p data-bbox="586 1650 1481 1724">For more information about the Enable List Of All Available CIs option, see “Configuring Adapter Connections” on page 47.</p> <p data-bbox="586 1745 1481 1852">If you want Designer to display an error if you select an invalid CI name, you can turn on automatic validation of adapter services as described in “Validating Adapter Service Values” on page 75.</p>

Parameter	Description/Action
Get History Items	Select this option if you want the service to get records that have effective dates that are set to a past date.

9. Select the **Key Fields** tab and specify the CI's Get key fields that the service will use as input fields to determine which record to return. Fields that you select on this tab will appear in the adapter service's input signature within a document called *ServiceNameInput*, where *ServiceName* is the name you specify for the service.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all Get key fields for the CI.
CI Field Type	This column lists the PeopleSoft data type for each Get key field.
Use Field	Select this option for each field you want to use as an input for the service, or click the  icon to select all of the fields. The service will use the values of these fields to determine which record to return. Each field you select on this tab will appear in the adapter service's input signature (see the Input/Output tab) within a document called <i>ServiceNameInput</i> , where <i>ServiceName</i> is the name you specify for the service.
Input Field Name	When you choose a field on this tab, this column lists the webMethods field name. Do not change the field name or the service will not work.
Input Field Type	This column lists the webMethods data type for each input field.

10. Select the **Output Fields** tab and specify the CI fields that the service will use as output fields.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all available output fields for the CI.
CI Field Type	This column lists the PeopleSoft data type for each CI output field.
CI Record Name	This column lists the record names for all available records in the CI. This column is provided as a convenience, enabling you to more easily identify record names.
Use Field	Select this option for each field you want to use as an output field, or click the  icon to select all of the fields. The service will return CI records containing these fields.

Parameter	Description/Action
	Each field that you select on this tab will appear in the adapter service's output signature (see the Input/Output tab) within a document called <i>ServiceNameOutput</i> , where <i>ServiceName</i> is the name you specify for the service.
Output Field Name	When you choose a field on this tab, this column lists the webMethods field name. Do not change the field name or the service will not work.
Output Field Type	This column lists the webMethods data type for each output field.

- When using Designer the, Designer contains only the **Adapter Settings** and **Input/Output** tabs. The information from the **Audit** and **Permissions** tabs appears in the **Properties** panel, and the information from the **Results** tab appears in the **Service Results** panel (in Designer). For more information see the *webMethods Service Development Help* for your release.
- From the **File** menu, select **Save**.

Configuring Insert Services

Insert services enable the adapter to insert level 0 or higher CI records into a PeopleSoft database. For more information about Insert services, see [“Insert Services” on page 20](#). You configure PeopleSoft Adapter services using Designer.

» To configure an Insert service

- Review the steps in [“Before Configuring or Managing Adapter Services” on page 58](#).
- Start Designer.
- Perform the following:
 - Right-click the package in which the service should be contained and select **New > Adapter Service**.
 - Select the parent namespace and type a name for the adapter service.
 - Click **Next**.
- Select **PeopleSoft Adapter** as the adapter type and click **Next**.
- Select the appropriate **Adapter Connection Name** and click **Next**.
- From the list of available templates, select the **Insert** template.

7. Click **Finish**.

The adapter service editor for the Insert service appears. You can select the **Adapter Settings** tab at any time to confirm adapter service properties such as the **Adapter Name**, **Adapter Connection Name**, and **Adapter Service Template**, as necessary.

8. Select the **Component Interface** tab, if it is not already selected, to specify the PeopleSoft component interface to use with the Insert service. Specify a value for the following fields:

Parameter	Description/Action
Component Interface	Specify the name of the CI with which the adapter service will interface, as follows: <ul style="list-style-type: none"> ■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to TRUE, you can select the CI from a list of all available CIs on the PeopleSoft system. <p>The list of CIs reflects all CIs on the PeopleSoft system. However, the adapter service will only work if the CI's .class files are copied to the Integration Server directory. See “Setting Up Your Adapter's Environment” on page 44 for details.</p> ■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to FALSE, you must type the name of the CI. This field is case sensitive. <p>For more information about the Enable List Of All Available CIs option, see “Configuring Adapter Connections” on page 47.</p> <p>If you want Designer to display an error if you select an invalid CI name, you can turn on automatic validation of adapter services as described in “Validating Adapter Service Values” on page 75.</p>

9. On the **Key Fields** tab, you can view the list of key fields that the CI requires for input services. The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all Create key fields for the CI.
CI Field Type	This column lists the PeopleSoft data type for each Create key field.
Input Field Name	This column lists the webMethods field names for the input fields. When running this service, these fields must contain values for the service to be able to create and insert a CI record.
Input Field Type	This column lists the webMethods data type for each input field.

10. Select the **Input Fields** tab and specify the CI fields that the service will use as input fields.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all available input fields for the CI.
CI Field Type	This column lists the PeopleSoft data type for each CI input field.
CI Record Name	This column lists the record names for all available records in the CI. This column is provided as a convenience, enabling you to more easily identify record names.
CI Record Key	<p>This column indicates whether the field is a key field for the CI record. If this column contains a check mark, then the field is required for the record indicated in the CI Record Name column.</p> <p>You must select the CI Record Key fields and provide values for these fields for each level 0 or higher record you are inserting into the PeopleSoft database or PeopleSoft will return an error. You do not have to provide values for level 1 or higher records that you are not inserting.</p>
Use Field	<p>Select this option for each field you want to use as an input field, or click the  icon to select all of the fields. You must select the CI record keys for each record the service will insert.</p> <p>Each field that you select on this tab will appear in the adapter service's input signature (see the Input/Output tab) within a document called <i>ServiceNameInput.CreateKeyFields</i>, where <i>ServiceName</i> is the name you specify for the service.</p>
Input Field Name	<p>When you choose a field on this tab, this column lists the webMethods field name. Do not change the field name or the service will not work.</p> <p>The insert service can use any of the fields selected on this tab when inserting a record. However, the service must contain values for the CI record key fields for each record the service will insert.</p>
Input Field Type	This column lists the webMethods data type for each input field.

11. Select the **Output Fields** tab and specify whether the service will return a status. The tab contains the following information:

Parameter	Description/Action
Status Field	This column shows the STATUS output field.
Use Field	Select this option if you want the service to return a status.

Parameter	Description/Action
	If you choose to use the STATUS field, the field will appear as an output field on the service's output signature (see the service's Input/Output tab).
Output Field Name	If you choose to use the STATUS field, this column lists the webMethods field name.
Output Field Type	This column lists the webMethods data type for the STATUS output field.

12. When using Designer, the Designer contains only the **Adapter Settings** and **Input/Output** tabs. The information from the **Audit** and **Permissions** tabs appears in the **Properties** panel, and the information from the **Results** tab appears in the **Service Results** panel (in Designer). For more information see the *webMethods Service Development Help* for your release.

13. From the **File** menu, select **Save**.

Configuring Find Services

Find services enable the adapter to find a set of CI records in a PeopleSoft database based on user-defined search criteria. For more information about Find services, see [“Find Services” on page 19](#). You configure PeopleSoft Adapter services using Designer.

> To configure a Find service

1. Review the steps in [“Before Configuring or Managing Adapter Services” on page 58](#).
2. Start Designer.
3. Perform the following:
 - a. Right-click the package in which the service should be contained and select **New > Adapter Service**.
 - b. Select the parent namespace and type a name for the adapter service.
 - c. Click **Next**.
4. Select **PeopleSoft Adapter** as the adapter type and click **Next**.
5. Select the appropriate **Adapter Connection Name** and click **Next**.
6. From the list of available templates, select the **Find** template.

7. Click **Finish**.

The adapter service editor for the Find service appears. You can select the **Adapter Settings** tab at any time to confirm adapter service properties such as the **Adapter Name**, **Adapter Connection Name**, and **Adapter Service Template**, as necessary.

8. Select the **Component Interface** tab to specify the PeopleSoft component interface to use with the Find service. Specify a value for the following field:

Parameter	Description/Action
Component Interface	Specify the name of the CI with which the adapter service will interface, as follows: <ul style="list-style-type: none"> ■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to TRUE, you can select the CI from a list of all available CIs on the PeopleSoft system. The list of CIs reflects all CIs on the PeopleSoft system. However, the adapter service will only work if the CI's .class files are copied to the Integration Server directory. See “Setting Up Your Adapter's Environment” on page 44 for details. ■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to FALSE, you must type the name of the CI. This field is case sensitive. <p>For more information about the Enable List Of All Available CIs option, see “Configuring Adapter Connections” on page 47. If you want Designer to display an error if you select an invalid CI name, you can turn on automatic validation of adapter services as described in “Validating Adapter Service Values” on page 75.</p>

9. Select the **Key Fields** tab and specify the CI key fields that the service will use as input fields to determine which CI records to retrieve.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all Find key fields for the CI.
CI Field Type	This column lists the PeopleSoft data type for each Find key field.
Use Field	Select this option for each field you want to use as an input for the service, or click the  icon to select all of the fields. The service will use the values of these fields to determine which CI records to find. Fields that you select on this tab will appear in the adapter service's input signature (see the Input/Output tab) within a document called

Parameter	Description/Action
	<i>ServiceNameInput</i> , where <i>ServiceName</i> is the name you specify for the service.
Input Field Name	When you choose a field on this tab, this column lists the webMethods field name. Do not change the field name or the service will not work.
Input Field Type	This column lists the webMethods data type for each input field.

10. Select the **Output Fields** tab and specify the CI fields that the service will return as output fields.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all available fields for the CI
CI Field Type	This column lists the PeopleSoft data type for each CI field.
CI Record Name	This column lists the record names for all available records. This column is provided as a convenience to more easily identify record names.
Use Field	Select this option for each field you want to use as an output field, or click the  icon to select all of the fields. Fields that you select on this tab will appear in the adapter service's output signature (see the Input/Output tab) within a document called <i>ServiceNameOutput</i> , where <i>ServiceName</i> is the name you specify for the service.
Output Field Name	When you choose a field on this tab, this column lists the webMethods field name.
Output Field Type	This column lists the webMethods data type for each output field.

11. When using Designer the, Designer contains only the **Adapter Settings** and **Input/Output** tabs. The information from the **Audit** and **Permissions** tabs appears in the **Properties** panel, and the information from the **Results** tab appears in the **Service Results** panel (in Designer). For more information see the *webMethods Service Development Help* for your release.

12. From the **File** menu, select **Save**.

Configuring Update Services

Update services enable the adapter to update an existing level 0 or higher CI record in a PeopleSoft database. For more information about Update services, see [“Update Services” on page 22](#). You configure PeopleSoft Adapter services using Designer.

➤ To configure an Update service

1. Review the steps in [“Before Configuring or Managing Adapter Services” on page 58](#).
2. Start Designer.
3. Perform the following:
 - a. Right-click the package in which the service should be contained and select **New > Adapter Service**.
 - b. Select the parent namespace and type a name for the adapter service.
 - c. Click **Next**.
4. Select **PeopleSoft Adapter** as the adapter type and click **Next**.
5. Select the appropriate **Adapter Connection Name** and click **Next**.
6. From the list of available templates, select the **Update** template.
7. Click **Finish**.

The adapter service editor for the Update service appears. You can select the **Adapter Settings** tab at any time to confirm adapter service properties such as the **Adapter Name**, **Adapter Connection Name**, and **Adapter Service Template**, as necessary.

8. Select the **Component Interface** tab, if it is not already selected, to specify the PeopleSoft component interface to use with the Update service. Specify values for the following fields:

Parameter	Description/Action
Component Interface	Specify the name of the CI with which the adapter service will interface, as follows: <ul style="list-style-type: none"> ■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to TRUE, you can select the CI from a list of all available CIs on the PeopleSoft system.

Parameter	Description/Action
	<p>The list of CIs reflects all CIs on the PeopleSoft system. However, the adapter service will only work if the CI's .class files are copied to the Integration Server directory. See “Setting Up Your Adapter's Environment” on page 44 for details.</p> <ul style="list-style-type: none"> ■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to FALSE, you must type the name of the CI. This field is case sensitive. <p>For more information about the Enable List Of All Available CIs option, see “Configuring Adapter Connections” on page 47.</p> <p>If you want Designer to display an error if you select an invalid CI name, you can turn on automatic validation of adapter services as described in “Validating Adapter Service Values” on page 75.</p>
Interactive Mode	<p>Select this option if you want the service to emulate an online component. That is, select this option if you want the service to apply values and run PeopleSoft business rules immediately. If you do not select this option, PeopleSoft queues the items and runs the business rules later, as a single step.</p>
Get History Items	<p>Select this option if you want the service to access records that have effective dates that are set to a past date.</p>
Edit History Items	<p>Select this option if you want the service to be able to update records with effective dates that are set to a past date.</p> <p>To use this option, you must also select the Get History Items option.</p> <div data-bbox="495 1213 1365 1455" style="background-color: #f0f0f0; padding: 5px;"> <p>Note: For PeopleTools versions 8.18 and 8.19, the Edit History Items feature is not supported. If you are using PeopleTools versions 8.18 or 8.19, you only need to select the Get History Items option if you want the service to update records with effective dates that are set to a past date.</p> </div>
Effective Date Processing	<p>Select this option if you want the update service to access and update effective-dated level 1 or higher records according to date. See “Effective Date Processing” on page 24 for a description of how the Update service uses effective date processing.</p> <p>To use this option, you must also select the Get History Items and Edit History Items options.</p>

9. Select the **Key Fields** tab and specify the CI key fields that the service will use to identify the record to update.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all Get key fields for the CI.
CI Field Type	This column lists the PeopleSoft data type for the Get field.
Use Field	Select this option for each field you want to use as an input for locating the record to update, or click the  icon to select all of the fields. Fields that you select on this tab will appear in the adapter service's input signature (see the Input/Output tab) within a document called <i>ServiceNameInput.LookupFields</i> , where <i>ServiceName</i> is the name you specify for the service.
Input Field Name	When you choose a field on this tab, this column lists the webMethods field name.
Input Field Type	This column lists the webMethods data type for each input field.

10. Select the **Update Fields** tab and specify the CI key fields that the service will use to update the record.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all available fields for the CI.
CI Field Type	This column lists the PeopleSoft data type for the field.
Use Field	Select this option for each field you want to use as an input for updating the record, or click the  icon to select all of the fields. Fields that you select on this tab will appear in the adapter service's input signature (see the Input/Output) within a document called <i>ServiceNameInput.UpdateFields</i> , where <i>ServiceName</i> is the name you specify for the service.
Input Field Name	When you choose a field on this tab, this column lists the webMethods field name.
Input Field Type	This column lists the webMethods data types for the service's CI input fields.

11. Select the **Output Fields** tab and specify whether the service will return a status.

The tab contains the following information:

Parameter	Description/Action
Status Field	This column shows the STATUS output field.
Use Field	Select this option if you want the service to return a status. If you choose to use the STATUS field, the field will appear as an output field on the service's Input/Output tab.
Output Field Name	If you choose to use the STATUS field, this column lists the webMethods field name.
Output Field Type	This column lists the webMethods data type for the STATUS output field.

- When using Designer, the Designer contains only the **Adapter Settings** and **Input/Output** tabs. The information from the **Audit** and **Permissions** tabs appears in the **Properties** panel, and the information from the **Results** tab appears in the **Service Results** panel (in Designer). For more information see the *webMethods Service Development Help* for your release.
- From the **File** menu, select **Save**.

Configuring Delete Row Services

Delete Row services enable the adapter to delete a level 1 or higher CI record from a PeopleSoft database. For more information about Delete Row services, see [“Delete Row Services” on page 25](#). You configure PeopleSoft Adapter services using Designer.

» To configure a Delete Row service

- Review the steps in [“Before Configuring or Managing Adapter Services” on page 58](#).
- Start Designer.
- Perform the following:
 - Right-click the package in which the service should be contained and select **New > Adapter Service**.
 - Select the parent namespace and type a name for the adapter service.
 - Click **Next**.
- Select **PeopleSoft Adapter** as the adapter type and click **Next**.
- Select the appropriate **Adapter Connection Name** and click **Next**.

6. From the list of available templates, select the **Delete Row** template.
7. Click **Finish**.

The adapter service editor for the Delete Row service appears. You can select the **Adapter Settings** tab at any time to confirm adapter service properties such as the **Adapter Name**, **Adapter Connection Name**, and **Adapter Service Template**, as necessary.

8. Select the **Component Interface** tab to specify the PeopleSoft component interface to use with the Insert service. Specify values for the following fields:

Parameter	Description/Action
Component Interface	<p>Specify the name of the CI with which the adapter service will interface, as follows:</p> <ul style="list-style-type: none"> ■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to TRUE, you can select the CI from a list of all available CIs on the PeopleSoft system. <p>The list of CIs reflects all CIs on the PeopleSoft system. However, the adapter service will only work if the CI's .class files are copied to the Integration Server directory. See “Setting Up Your Adapter's Environment” on page 44 for details.</p> <ul style="list-style-type: none"> ■ If the Enable List Of All Available CIs parameter for this service's associated adapter connection is set to FALSE, you must type the name of the CI. This field is case sensitive. <p>For more information about the Enable List Of All Available CIs option, see “Configuring Adapter Connections” on page 47. If you want Designer to display an error if you select an invalid CI name, you can turn on automatic validation of adapter services as described in “Validating Adapter Service Values” on page 75.</p>
Interactive Mode	Select this option if you want the service to emulate an online component. That is, select this option if you want the service to apply values and run PeopleSoft business rules immediately, or whether you want the service to queue the items and run the business rules later, in a single step.
Get History Items	Select this option if you want the service to get records that have effective dates that are set to a past date.
Edit History Items	Select this option if you want the service to be able to modify records with effective dates that are set to a past date.
	To use this option, you must also select the Get History Items option.

9. Select the **Lookup Key Fields** tab and specify the CI key fields that the service will use to locate the level 0 record from which you want to delete level 1 or higher records.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all Get key fields that you can use to identify records for the CI.
CI Field Type	This column lists the PeopleSoft data type for the CI Get field name.
Use Field	Select this option for each field you want to use as an input for locating the level 0 record, or click the  icon to select all of the fields. Fields that you select on this tab will appear in the adapter service's input signature (see the Input/Output tab) within a document called <i>ServiceNameInput.LookupFields</i> , where <i>ServiceName</i> is the name you specify for the service.
Input Field Name	If you choose to use a CI field, this column lists the webMethods field name.
Input Field Type	This column lists the webMethods data types for the service's CI input fields.

10. Select the **Delete Key Fields** tab and specify the CI fields that the service will use to delete level 1 or higher records. That is, the service uses the delete key fields to identify the level 1 or higher records to delete.

The tab contains the following information:

Parameter	Description/Action
CI Field Name	This column lists all available key fields for the CI.
CI Field Type	This column lists the PeopleSoft data type for the CI field.
Use Field	Select this option for each field you want to use as an input field to identify the record to delete, or click the  icon to select all of the fields. Fields that you select on this tab will appear in the adapter service's input signature (see the Input/Output tab) within a document called <i>ServiceNameInput.DeleteKeys</i> , where <i>ServiceName</i> is the name you specify for the service.
Delete Row Key Name	When you choose a field on this tab, this column lists the webMethods field name. Do not change the name of the field or the service will not work.

Parameter	Description/Action
	Fields you select here are included as output fields on the service's Input/Output tab.
Delete Row Key Type	This column lists the webMethods data types for the delete key fields.

11. Select the **Output Fields** tab and specify whether the service will return a status.

The tab contains the following information:

Parameter	Description/Action
Status Field	This column shows the STATUS output field.
Use Field	Select this option if you want the service to return a status. If you choose to use the STATUS field, the field in the service's output signature (see the Input/Output tab).
Output Field Name	If you choose to use the STATUS field, this column lists the webMethods field name.
Output Field Type	This column lists the webMethods data type for the STATUS output field.

12. When using Designer, the Designer contains only the **Adapter Settings** and **Input/Output** tabs. The information from the **Audit** and **Permissions** tabs appears in the **Properties** panel, and the information from the **Results** tab appears in the **Service Results** panel (in Designer). For more information see the *webMethods Service Development Help* for your release.

13. From the **File** menu, select **Save**.

Testing Adapter Services

You use Designer to test adapter services.

For more information about testing and debugging services, see the *webMethods Service Development Help* for your release.

➤ To test adapter services

1. Review the steps in [“Before Configuring or Managing Adapter Services”](#) on page 58.
2. In Designer, expand the package and folder that contain the service you want to test.
3. Double-click the service you want to test.

Designer displays the configured service in the service template's Adapter Service Editor.

4. Select **Run > Run As > Run Service**.
5. For every service input field, you will be prompted to enter an input value. Enter a value for each input field and then click **OK**.
6. Click the **Service Result** tab (in Designer) to view the output from this service.

Viewing Adapter Services

You use Designer to view adapter services.

> To view a service

1. Review the steps in [“Before Configuring or Managing Adapter Services”](#) on page 58.
2. In Designer, expand the package and folder that contain the service you want to view.
3. Double-click the service you want to view.

Designer displays the configured service in the service template's Adapter Service Editor.

Editing Adapter Services

You use Designer to edit adapter services.

> To edit an adapter service

1. In Designer, browse to and open the adapter service that you want to edit.
2. Double-click the service that you want to edit.

Designer displays the adapter service in the service template's Adapter Service Editor.

3. Do one of the following:
 - If you have the VCS Integration feature enabled, right-click the service and select **Check Out**.
 - If you do not have the VCS Integration feature enabled, right-click the service and select **Lock for Edit**.
 - If you are using the local service development feature, from the **Team** menu in Designer, select the appropriate option to check out the service. The options available in the **Team** menu depend on the VCS client that you use.

4. Modify the values for the adapter service's parameters as needed. For detailed descriptions of the service's parameters, see the section on configuring a service for the specific type of service you want to edit.
5. After you complete your modifications, save the service and do one of the following:
 - If you have the VCS Integration feature enabled, right-click the service and select **Check In**. Enter a check-in comment and click **OK**.
 - If you do not have the VCS Integration feature enabled, right-click the service and select **Unlock**.
 - If you are using the local service development feature, from the **Team** menu in Designer, select the appropriate option to check in the service. The options available in the **Team** menu depend on the VCS client that you use.
6. Save the service.

Deleting Adapter Services

You use Designer to delete adapter services.

> To delete a service

1. Review the steps in [“Before Configuring or Managing Adapter Services”](#) on page 58.
2. In Designer, expand the package and folder that contain the service you want to delete.
3. Right-click the service and click **Delete**.

Validating Adapter Service Values

Designer enables the PeopleSoft Adapter to validate user-defined data for adapter services at design time. You can validate the values for a single adapter service or you can configure Designer to always validate the values for adapter services. Both options could potentially slow your design-time operations.

When you enable data validation for a single adapter service, Designer compares the service values against the resource data that has already been fetched from the selected adapter.

If you select the option to always validate values for adapter services, it will do so for all webMethods WmART-based adapters installed on the Integration Server.

For more information about the **Adapter Service/Notification Editor** and other Designer menu options and toolbar icons, see the *webMethods Service Development Help* for your release.

Validating Values for a Single Adapter Service

> To validate adapter service values for a single adapter service

1. Review the steps in [“Before Configuring or Managing Adapter Services”](#) on page 58.
2. In Designer, expand the package and folder that contain the service for which you want to enable automatic validation.
3. Double-click the service for which you want to validate the data.

Designer displays the configured adapter service in the service template's Adapter Service Editor.

4. Click the  icon.

Note:

This icon is available only when the **Automatic data validation** option is disabled.

Designer opens a connection with the PeopleSoft system. If the CI name does not exactly match the name of a CI on the PeopleSoft system, or if you do not have the compiled .class files on your Integration Server, you will receive an error.

Validating Values for All Adapter Services

> To validate adapter service values for all adapter services

1. Review the steps in [“Before Configuring or Managing Adapter Services”](#) on page 58.
2. Start Designer.
3. Select the **Window > Preferences > Software AG > Service Development > Adapter Service/Notification Editor** item.
4. Enable the **Automatic data validation** option.
5. Click **OK**.

Reloading Adapter Values

Designer enables the PeopleSoft Adapter to reload and validate user-defined data for adapter services at design time. You can reload values for a single adapter service or you can configure Designer so it automatically reloads the values for adapter services. Both options could potentially slow your design-time operations.

When you reload adapter values for a single adapter service, Designer compares the service values against the resource data that has already been fetched from the selected adapter.

If you select the option to always reload values for adapter services, it will do so for all webMethods WmART-based adapters installed on the Integration Server.

For more information about the **Adapter Service/Notification Editor**, other menu options, and toolbar icons, see the *webMethods Service Development Help* for your release.

Reloading Values for a Single Adapter Service

➤ To reload the adapter values for a single adapter service

1. Review the steps in [“Before Configuring or Managing Adapter Services”](#) on page 58.
2. In Designer, expand the package and folder that contain the service for which you want to enable automatic validation.
3. Double-click the service for which you want to validate the data.

Designer displays the configured adapter service in the service template's Adapter Service Editor.

4. Click the  icon.

Note:

This icon is available only when the **Automatic polling of adapter metadata** option is disabled.

Reloading Values for All Adapter Services

➤ To reload adapter values for all adapter services

1. Review the steps in [“Before Configuring or Managing Adapter Services”](#) on page 58.
2. Start Designer.
3. Select the **Window > Preferences > Software AG > Service Development > Adapter Service/Notification Editor** item.
4. Enable the **Automatic polling of adapter metadata** option.
5. Click **OK**.

6 PeopleSoft-to-webMethods Communications

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Overview

This chapter provides instructions for creating PeopleSoft-to-webMethods (outbound) transaction services. To create PeopleSoft-to-webMethods transactions, you must set up your PeopleSoft Web server for outbound transactions, and you must set up your Integration Server to handle the messages as they arrive from PeopleSoft. This chapter provides detailed instructions for those steps. Additionally, this chapter provides information about how to configure your PeopleSoft system to communicate to the Integration Server using SSL, and describes how to monitor your outbound PeopleSoft request messages at run time.

For a detailed description of PeopleSoft-to-webMethods communications, see [“PeopleSoft-to-webMethods Communications” on page 27](#).

Note:

For PeopleSoft-to-webMethods communications, the PeopleSoft Adapter supports only the PeopleTools versions specified in the *webMethods Adapters System Requirements*.

Setting Up the PeopleSoft Web Server for Outbound Transactions

To set up the PeopleSoft Web server to enable outbound communications to webMethods, perform the following steps:

Step	See
1	“Creating Messages for Use with the PeopleSoft Adapter ” on page 80
2	“Configuring the Integration Gateway” on page 81
3	“Configuring a Node” on page 81
4	“Writing a PeopleCode Program for use with PeopleSoft Events” on page 89

Note:

Before setting up the PeopleSoft Web server, check the PeopleSoft server status and make sure the PUBSUB group is running. For details, see the PeopleBooks *PeopleSoft Server Tools Administration* document.

Creating Messages for Use with the PeopleSoft Adapter

For PeopleSoft-to-webMethods communications, you must have a request message for outbound asynchronous transactions and you must have a request message and a reply message for outbound synchronous transactions.

You can use existing messages or you can create new messages. Use the PeopleSoft Application Designer to create the messages and their properties. See the PeopleBooks documentation for information about creating messages.

Configuring the Integration Gateway

➤ To configure the Integration Gateway to communicate with webMethods

1. Sign on to PeopleSoft by launching your browser and going to the following URL:

`http://App_Server_Hostname:Port_Number/ps/signon.html`

where *App_Server_Hostname* refers to WebLogic or WebSphere, as appropriate, and *Port_Number* refers to the port number of the application server.

Example: `http://parts.west.smithco.com:8080/ps/signon.html`

2. From the **PeopleSoft** menu, click the **PeopleTools** link.
3. Click **Integration Broker**, and then click **Gateways**.
4. You can select an existing Integration Gateway ID or add a new Integration Gateway.
 - To select an existing Integration Gateway ID, click the **Find an Existing Value** tab, enter a search parameter to identify the Gateway ID, and then select the Gateway ID you want to use.
 - To add a new Integration Gateway:
 1. Click the **Add a New Value** tab, type a name for the new Gateway, and then click **Add**.
 2. Enable the **Local Gateway** option. This Gateway must be the local Gateway.
 3. In **Gateway URL**, go to the URL for the selected Gateway's listening connector, as follows:

`http://App_Server_Hostname:Port_Number/PSIGW/PeopleSoftListeningConnector`

where *App_Server_Hostname* refers to WebLogic or WebSphere, as appropriate, and *Port_Number* refers to the port number of the application server.

Example: `http://parts.west.smithco.com:8080/PSIGW/PeopleSoftListeningConnector`
 4. Click **Load** to load all available target connectors and verify that HTTPTARGET is in the list of connector IDs for the Gateway.
 5. Click **Save**.

Configuring a Node

To configure a PeopleSoft node, perform the following basic steps:

1. [“Define a Node” on page 82](#)
2. [“Define a Connector” on page 83](#)

3. [“Test the Node” on page 85](#)
4. [“Define a Transaction” on page 85](#) or [“Define a Service Operation” on page 88](#)

Important:

If you are using PeopleTools versions 8.41, 8.42, 8.43, 8.44, 8.45, 8.46, or 8.47, you define a transaction. If you are using PeopleTools version 8.48 or 8.49, you define a service operation.

Define a Node

You can define a node by using an existing node or adding a new one.

Use an Existing Node

➤ **To define a node by using an existing node**

1. Launch your browser and sign on to PeopleSoft.
2. From the PeopleSoft menu, click **PeopleTools > Integration Broker > Node Definitions**.
3. Select an existing node as follows:
 - a. Click the **Find an Existing Value** tab and search for the node you want to use.
 - b. Select the node.
4. Proceed with defining a connector. For instructions on how to define a connector, see [“Define a Connector” on page 83](#).

Use a New Node

➤ **To define a node by adding a new node**

1. Launch your browser and sign on to PeopleSoft.
2. From the PeopleSoft menu, click **PeopleTools > Integration Broker > Node Definitions**.
3. Add a new node as follows:
 - a. Click the **Add a New Value** tab.
 - b. Type the **Node Name**.
 - c. Click **Add**.

- d. On the **Node Info** tab, specify the following parameters for the node. If a field or option is not listed in the table, you do not need to enter a value for the field or enable the option. For detailed field definitions, see the PeopleSoft documentation.

Field	Action/Description
Description	Type descriptive information about the node. Optional.
Company ID	Type your company ID.
Node Type	Select PIA .
Active Node	Enable this option.
Routing Type	Select Implicit .
Authentication Option	Select None if you do not require Authentication for this node, or select Certificate if you plan to use SSL with this node.

- e. Click **Save**.
4. Proceed with defining a connector. For instructions on how to define a connector, see [“Define a Connector” on page 83](#).

Define a Connector

> To define a connector

1. Launch your browser and sign on to PeopleSoft.
2. From the PeopleSoft menu, click **PeopleTools > Integration Broker > Node Definitions > Connectors**.
3. Verify the **Node Name**.
4. Select the **Gateway ID** for the gateway that you configured in [“Configuring the Integration Gateway” on page 81](#).
5. Select **HTTPTARGET** as the **Connector ID**.
6. Type the following values in the **Properties** panel. For detailed field descriptions, see the PeopleSoft documentation.

Field	Action/Description
HEADER	Property Name: sendUncompressed

Field	Action/Description
	<p>Required: Enable this option.</p> <p>Value: Y</p> <p>Data Type: STRING</p> <p>Description: A descriptive text entry is optional.</p>
HTTPPROPERTY	<p>Property Name: Method</p> <p>Required: Enable this option.</p> <p>Value: POST</p> <p>Data Type: STRING</p> <p>Description: A descriptive text entry is optional.</p>
PRIMARYURL	<p>Property Name: URL</p> <p>Required: Enable this option.</p> <p>Value: The URL that points to the Integration Server, as follows:</p> <pre>http<s>://IntegrationServer_Host:Port/invoke/ wm.adapter.peoplesoft.outbound. sample.receiveXML</pre> <p>For example:</p> <pre>http://localhost:5555/invoke/wm.adapter. peoplesoft.outbound.sample.receiveXML</pre> <p>Data Type: STRING</p> <p>Description: A descriptive text entry is optional.</p>
HEADER	<p>Property Name: Authorization</p> <p>Required: Enable this option.</p> <p>Value: The user name and password used as Authorization to start the Integration Server.</p> <p>Use the following format, along with the encoding flow service listed below, to encode the user name and password:</p> <p>"Basic" (+ Base64Encode service using username + ":" + password)</p> <p>To encode the username and password, use the following utility flow service:</p> <pre>wm.adapter.peoplesoft.outbound.utils.encoding</pre>

Field	Action/Description
	<p>where the input for the encoding service is a string constructed from the username and password, as follows:</p> <pre data-bbox="548 352 878 386">"username"+" ":"password"</pre> <p>For example, if the username is "name" and the password is "pwd", the input for the encoding service would be "name:pwd".</p> <p>The result of encoding flow service for these values would be "bmFtZTpwd2Q". Thus, the value of the Authorization field would be "Basic bmFtZTpwd2Q".</p> <p>Data Type: Leave this field blank.</p> <p>Description: A descriptive text entry is optional.</p>

7. Click **Save**.
8. You can test the node to check if the connection is getting through the gateway. For instructions on how to test the node, see [“Test the Node” on page 85](#).
9. Proceed with defining a transaction or a service operation. For instructions, see [“Define a Transaction” on page 85](#) and [“Define a Service Operation” on page 88](#).

Test the Node

To test whether the node's connection is getting through the gateway, ping the node.

> To ping the node

1. From the PeopleSoft menu, click **Integration Broker > Monitor Messages**.
2. Select the **Node Status** tab.
3. In the **Message Node Name** field, specify the node name and then click **Ping Node**.

Define a Transaction

If you are using PeopleTools versions 8.41, 8.42, 8.43, 8.44, 8.45, 8.46, or 8.47, define a transaction using the following procedure.

> To define the node's transaction

1. Launch your browser and sign on to PeopleSoft.

2. From the PeopleSoft menu, click **PeopleTools > Integration Broker > Node Definitions > Transactions**.
3. Choose an existing transaction or add a new transaction.

To add a new transaction:

- a. Click **Add Transaction**.
- b. From the **Add a New Value** tab, provide values for the following fields. For detailed field descriptions, see your PeopleSoft documentation.

Field	Action/Description
Node Name	Select the name of the node you defined earlier.
Effective Date	Type the date the transaction should go into effect.
Transaction Type	Select Outbound Synchronous . For more information about Outbound Synchronous transactions, see the PeopleSoft documentation.
Request Message	Select the name of the request message.
Request Message Version	Select the message version.

- c. Click **Add**.
4. On the **Transaction Detail** tab, provide values for the following fields. For detailed field descriptions, see your PeopleSoft documentation.

Field	Action/Description
Node Name	Verify the name of the node you defined earlier.
Effective Date	Verify the date the transaction should go into effect.
Status	Select Active .
Transaction Type	Verify that the transaction type is OutSync .
Request Message	Verify the name of the request message.
Request Message Version	Verify the message version.
Routing Type	Select Implicit .
Override Connector	Disable this option.

Field	Action/Description
Comments	Optional descriptive text entry.

- Click **Transactions > Save**.
- On the **Messages** tab, provide values for the following fields. For detailed field descriptions, see the PeopleSoft documentation.

Field	Action/Description
Node Name	Verify the name of the node you defined earlier.
Effective Date	Verify the date the transaction should go into effect.
Status	Verify that the message status is active.
Log Message Detail	Enable this option if you want to see the transaction's full message details logged in the PeopleSoft Integration Broker Monitor.
Request Message:	
Name	Verify the name of the request message.
Version	Verify the request message version.
External Name	Optional entry.
Response Message:	
Name	Select the name of the response message.
Version	Select the response message version.
External Name	Optional entry.

- Click **Save**.

After you complete these steps, you should have a node defined with connectors and transactions similar to the following example:

Name	Value
Node	WEBM_NODE
GatewayID	LOCAL
ConnectorID	HTTPTARGET
Transactions	OutSync

Name	Value
Request Message	REP_SYNC, version_1
Response Message	WEBM_REPLY, version_1

Define a Service Operation

If you are using PeopleTools version 8.48 or 8.49, define a service operation using the following procedure.

> To define the node's service operation

1. Launch your browser and sign on to PeopleSoft.
2. From the PeopleSoft menu, click **PeopleTools > Integration Broker > Service Operations**.
3. Select an existing service operation or add a new service operation.

To add a new service operation:

- a. Click the **Add Service Operation** tab.
- b. Provide values for the following fields. For detailed field descriptions, see your PeopleSoft documentation.

Field	Action/Description
Service	Select the name of the service you defined earlier.
Service Operation	Enter the name of the service operation. For example, WEBM_SO.
Operation Type	Select Synchronous . For more information about Synchronous transactions, see the PeopleSoft documentation.

- c. Click **Add**.
- d. On the **General** tab, provide values for the following fields. For detailed field descriptions, see your PeopleSoft documentation.

Field	Action/Description
Operation Description	Enter the description of the operation.
Request Message Version	Select the message version.

Field	Action/Description
Response Message Version	Select the message version.

- e. Click **Save**.
4. On the **Routing** tab, enter the **Routing Name**. For example, WEBM_ROUTING.
5. Click **Add**.
6. On the **Routing Definitions** tab, provide values for the following fields. For detailed field descriptions, see the PeopleSoft documentation.

Field	Action/Description
Sender Node	Should be the default local node. For example, PSFT_CR.
Receiver Node	Verify the name of the node you defined earlier. For example, WEBM_NODE. WEBM_NODE is the node representing the Integration Server.
Status	Verify that the message status is active.
Log Detail	Select an option.

7. Click **Save**.

After you complete these steps, you should have a node defined with connectors and service operations similar to the following example:

Name	Value
Node	WEBM_NODE
GatewayID	LOCAL
ConnectorID	HTTPTARGET
Service Operation	WEBM_SO
Routing Name	WEBM_ROUTING

Writing a PeopleCode Program for use with PeopleSoft Events

For the PeopleSoft Adapter's outbound transactions, you use the PeopleCode Editor to create a PeopleCode program for use with the component's *SavePreChange* or *SavePostChange* event. PeopleSoft calls *SavePreChange* events before any database updates and calls *SavePostChange* events after any database updates.

For an overview of how the PeopleSoft Adapter uses PeopleCode programs, see [“PeopleSoft-to-webMethods Communications” on page 27](#). For more details on PeopleCode events, see your PeopleSoft documentation.

➤ **To create a PeopleCode Program that sends a message to the node**

1. Start the PeopleSoft Application Designer. You must use the PeopleSoft Application Designer to view, edit, or create PeopleCode.
2. Open the component that has the request message attached to the SavePreChange or SavePostChange event.
3. View the PeopleCode for the selected component. See your PeopleSoft documentation if you need instructions on using the PeopleCode Editor.
4. If you are using PeopleTools versions 8.41, 8.42, 8.43, 8.44, 8.45, 8.46, or 8.47, select the event (for example, SavePostChange), and type the following code in the PeopleCode Editor:

```
Local Message &request, &response;  
Local Rowset &rep;  
&rep = GetLevel0();  
&request = CreateMessage(Message.REP_SYNC);  
&request.CopyRowsetDelta(&rep);  
&response = &request.SyncRequest(Node.WEBM_NODE);
```

where REP_SYNC is the name of the request message and WEBM_NODE is the node representing the Integration Server.

5. If you are using PeopleTools version 8.48 or 8.49, select the event (for example, SavePostChange), and type the following code in the PeopleCode Editor:

```
Local Message &request, &response;  
Local Rowset &rep;  
&rep = GetLevel0();  
&request = CreateMessage(Operation.WEBM_SO);  
&request.CopyRowsetDelta(&rep);  
&response = %IntBroker.SyncRequest(&request, Node.WEBM_NODE);
```

where WEBM_SO is the name of the service operation and WEBM_NODE is the node representing the Integration Server.

6. Click the **Save**.

Using the PeopleSoft Adapter's Sample and Utility Services

After you set up your PeopleSoft Web server to send messages to the Integration Server, you must handle those messages (for example, accept the XML documents and then send reply messages to PeopleSoft, if required) as they are received by the Integration Server.

You can create your own services in the Integration Server to handle the messages, or you can use the sample flow service `wm.adapter.peoplesoft.outbound.sample.receiveXML`, which is provided in the `WmPeopleSoftAdapter` package, to handle the messages.

The `wm.adapter.peoplesoft.outbound.sample.receiveXML` flow service consists of the following services:

Service Name	Description
<code>wm.adapter.peoplesoft.outbound.sample.getXML</code>	Sample Java service that receives XML messages (for example, a <code>REP_SYNC</code> message) into a String.
<code>wm.adapter.peoplesoft.outbound.sample.getDBTableName</code>	Sample Java services that extract fields from received XML messages.
<code>wm.adapter.peoplesoft.outbound.sample.mergeData</code>	
<code>wm.adapter.peoplesoft.outbound.sample.createReplyXML</code>	Sample Java service that creates a response message (for example, <code>WEBM_REPLY</code>), in the XML format required by PeopleSoft.
<code>pub.web:stringToDocument</code>	Built-in services that convert a string to a record.
<code>pub.web:documentToRecord</code>	
<code>pub.flow:setResponse</code>	A built-in service that sends a response document back.

The adapter also provides the following utility services in the `WmPeopleSoftAdapter` package:

Service Name	Description
<code>wm.adapter.peoplesoft.outbound.utils.testSetResponse</code>	Tests the response XML.
<code>wm.adapter.peoplesoft.outbound.utils.encoding</code>	Encodes the username and password.

To use the sample services, you must modify the services for your specific outbound transactions. The samples contain comments that illustrate where you need to update them. For more information about outbound transactions, see [“PeopleSoft-to-webMethods Communications” on page 27](#).

Using SSL to Communicate with the Integration Server

The following configuration needs to be done on your PeopleSoft system. For detailed instructions on how to implement SSL encryption in PeopleSoft, see the PeopleBooks *PeopleSoft Integration Broker* document.

Before you set up your PeopleSoft system to use SSL to communicate with the Integration Server, you must first configure the Integration Server to enable an HTTPS port. If you need instructions for setting up an HTTPS port, see the *webMethods Integration Server Administrator's Guide* for your release.

➤ **To use SSL to communicate with the Integration Server running on an HTTPS port**

1. Copy the CA Certificate used to set up an HTTPS port on the Integration Server to a temporary folder.
2. Copy the pskey file from the application server to the temporary folder. You can find the pskey in one of the following locations:

- For WebSphere:

WebSphere_directory\Appserver\installedApps\peoplesoft\keystore

- For WebLogic:

WebLogic_directory/config/peoplesoft/keystore

3. Make a backup copy of the pskey file.
4. Use the following command to add your CA Certificate to the key store:

```
JDK_1.3_Home_directory /bin/keytool -import -trustcacerts -alias YourCompany  
-file YOUR_CACERT.CER -keystore pskey -storepass password
```

where *YourCompany* is the name with which you will identify your CA Certificate, *pskey* is the file name of the keystore, and *password* is the password protecting the keystore. Initially its value is "password". If the default password value has changed, you can get it from the `integrationgateway.properties` file.

5. Restart your WebLogic or WebSphere application server.
6. You can now send your messages to the HTTPS URL that points to your Integration Server. For URL syntax and instructions, see [“Configuring a Node” on page 81](#).

Monitoring PeopleSoft Request Messages

➤ **To monitor messages sent from PeopleSoft to webMethods**

1. Launch your browser and go to the following URL (if you have not already done so):

`http://App_Server_Hostname:Port_Number/ps/signon.html`

where *App_Server_Hostname* refers to WebLogic or WebSphere, as appropriate, and *Port_Number* refers to the port number of the application server.

Example: `http://parts.west.smithco.com:8080/ps/signon.html`

2. Click the **PeopleTools** link.
3. From the **PeopleSoft** menu, select **Integration Broker** and click **Monitor Messages**.

The **Overview** tab shows the list of messages. When an outbound transaction completes, the request message (for example, REP_SYNC) will be displayed on this tab with its corresponding status.

4. See the PeopleBooks *PeopleSoft Integration Broker* document for more information about administering messages.

7 Predefined Health Indicator

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Predefined Health Indicator

Microservices Runtime includes predefined health indicators for some of its basic components. The health indicator captures the connection details for all the WmART based adapters at runtime. For more information, see *webMethods Adapter Runtime User's Guide*.

8 Administrator APIs

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Administrator APIs

The Administrator APIs are available for PeopleSoft Adapter. For more information about Administrator APIs and samples, see *webMethods Adapter Runtime User's Guide*.

9 Configuration Variables Templates for Adapter Assets in Microservices Runtime

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Configuration Variables Templates for Adapter Assets in Microservices Runtime

The webMethods Adapter Runtime (ART) asset properties that can be configured from Integration Server Administrator are available in the configuration variables template (`application.properties` file) generated by Microservices Runtime. For more information, see *webMethods Adapter Runtime User's Guide* and *Developing Microservices with webMethods Microservices Runtime*.

10 Logging and Exception Handling

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Overview

The following sections describe message logging and exception handling for the PeopleSoft Adapter. A list of error codes and supporting information appears in “[PeopleSoft Adapter Error Codes](#)” on page 104.

PeopleSoft Adapter Logging Levels

The PeopleSoft Adapter uses the Integration Server logging mechanism to log messages. You can configure and view the Integration Server logs to monitor and troubleshoot the PeopleSoft Adapter. For detailed information about logging in the Integration Server, including instructions for configuring and viewing the different kinds of logs supported by the server, see the *webMethods Integration Server Administrator's Guide* for your release.

Configuring Adapter Logging Levels

Beginning with Integration Server 7.1, you can configure different logging levels for the PeopleSoft Adapter.

Accessing Logging Information

➤ To access the adapter's logging information

1. From the Integration Server Administrator screen, select **Settings > Logging**.

The **Logging Settings** screen appears. The **Loggers** section has **Adapters** included in the **Facility** section.

2. Expand the **Adapters** tree to see a list of all installed adapters with their code number and adapter description, along with the logging level.

Changing Logging Settings

➤ To change logging settings for the adapter

1. Click **Edit Logging Settings**. Select the required **Level of Logging** for the PeopleSoft Adapter.
2. After making your changes, click **Save Changes**.
3. For complete information about specifying the amount and type of information to include in the log, see the *webMethods Audit Logging Guide* for your release.

PeopleSoft Adapter Message Logging

The Integration Server maintains several types of logs; however, the PeopleSoft Adapter only logs messages to the audit, error and server logs. Because the PeopleSoft Adapter works in conjunction with the WmART package, the adapter's messages and exceptions typically appear within log messages for the WmART package.

The logging levels are different depending on which version of the Integration Server you are running the adapter on, as shown in the following table.

Integration Server	Log	Description
Integration Server 6.5	Audit Log	You can monitor individual adapter services using the audit log as you would audit any service in the Integration Server. The audit properties for an adapter service are available in each PeopleSoft Adapter service template on the Audit tab.
	Error Log	The PeopleSoft Adapter automatically posts critical-level and error-level log messages to the server's error log. These log messages will appear as adapter run-time messages.
	Server Log	The PeopleSoft Adapter posts messages to the Server log, depending on how the server log is configured. Critical-level through debug-level log messages appear as Adapter Run time log messages. V1-Verbose1 or V4-Verbose4 log messages appear as PeopleSoft Adapter log messages.
Integration Server 7.1 and higher	Audit Log	You can monitor individual adapter services using the audit log as you would audit any service in the Integration Server. The audit properties for an adapter service are available in each PeopleSoft Adapter service template on the Audit tab.
	Error Log	The PeopleSoft Adapter automatically posts fatal-level and error-level log messages to the server's error log. These log messages will appear as adapter run-time messages.
	Server Log	The PeopleSoft Adapter posts messages to the server log, depending on how the server log is configured. Fatal-level through debug-level log messages appear as adapter run-time log messages. Trace-level log messages appear as PeopleSoft Adapter log messages.

The PeopleSoft Adapter's log messages appear in the following format: ADA.0336.nnnnc, where:

- ADA is the facility code that indicates that the message is from an adapter.

- 0336 (or 336) is the PeopleSoft Adapter major code, which indicates that the error is generated by the PeopleSoft Adapter.
- *nnnn* represents the error's minor code. For detailed descriptions of the PeopleSoft Adapter's minor codes, see “[PeopleSoft Adapter Error Codes](#)” on page 104.
- *c* represents the message's severity level (optional).

Because the PeopleSoft Adapter works in conjunction with the WmART package, the adapter's messages and exceptions typically appear within log messages for the WmART package, although that is not necessarily true for verbose-level messages.

To monitor the PeopleSoft Adapter's log messages in the Server log, ensure that your server log's logging settings are configured to monitor the following facilities:

- 0113 Adapter Runtime (Managed Object)
- 0114 Adapter Runtime
- 0115 Adapter Runtime (Listener)
- 0116 Adapter Runtime (Notification)
- 0117 Adapter Runtime (Adapter Service)
- 0118 Adapter Runtime (Connection)
- 0121 Adapter Runtime (SCC Transaction Manager)
- 0126 Adapter Runtime (SCC Connection Manager)

Handling PeopleSoft Exceptions

If a PeopleSoft Adapter object (for example, a connection or service) encounters an error with the PeopleSoft system, it will throw an adapter error coupled with the PeopleSoft error, exactly as it was thrown by PeopleSoft. The PeopleSoft errors will be in an IData format.

For example, if a Get service fails on the PeopleSoft system at run time because its input fields contain invalid key values, you will receive an adapter error that indicates that the Get service failed, and the adapter error will contain the specific error generated on the PeopleSoft system indicating why the service failed. In this case, you would receive a PeopleSoft error specifying that the input key field values are invalid.

PeopleSoft Adapter Error Codes

This section lists the PeopleSoft Adapter's Critical- and Error-level minor codes, including the text of each error, information about the cause of the errors, and possible responses to the errors.

Error Code	Description
1000	PeopleSoft Session Connection failed

Error Code	Description
	Explanation: The adapter encountered a problem when trying to connect to the PeopleSoft system.
	Action: Check to see if the PeopleSoft application server is down, if there are network problems, or if the WmPeopleSoftAdapter\code\jars directory contains the correct psjoa.jar file.
1001	PeopleSoft operation error
	Explanation: This is a generic error that occurs if something goes wrong with a Get, Find, Update, Insert, or Delete Row service. The error will contain the specific exceptions or error from the PeopleSoft system.
	Action: Check the PeopleSoft exception and error for details about the error.
1011	GET operation execution failed
	Explanation: The Get service was unable to complete the operation because it encountered an error in the PeopleSoft system. The adapter error contains the specific PeopleSoft error.
	Action: See the PeopleSoft error for details.
1012	FIND operation execution failed
	Explanation: The Find service was unable to complete the operation because it encountered an error in the PeopleSoft system. The adapter error contains the specific PeopleSoft error. This error will contain the specific PeopleSoft exception and error.
	Action: See the PeopleSoft error for details.
1013	INSERT operation execution failed
	Explanation: The Insert service was unable to complete the operation because it encountered an error in the PeopleSoft system. The adapter error contains the specific PeopleSoft error. This error will contain the specific PeopleSoft exception and error.
	Action: See the PeopleSoft error for details.
1014	UPDATE operation execution failed
	Explanation: The Update service was unable to complete the operation because it encountered an error in the PeopleSoft system. The adapter error contains the specific PeopleSoft error. This error will contain the specific PeopleSoft exception and error.
	Action: See the PeopleSoft error for details.
1015	Delete Row operation execution failed

Error Code	Description
	<p>Explanation:The Delete Row service was unable to complete the operation because it encountered an error in the PeopleSoft system. The adapter error contains the specific PeopleSoft error. This error will contain the specific PeopleSoft exception and error.</p>
	<p>Action:See the PeopleSoft error for details.</p>
1021	Problem connecting to PeopleSoft server - check logs
	<p>Explanation:The adapter encountered a problem trying to connect to the PeopleSoft system.</p>
	<p>Action:Check to see if the PeopleSoft application server is down, if there are network problems, or if the WmPeopleSoftAdapter\code\jars directory contains the correct psjoa.jar file.</p>
1022	Problem getting the CI Info of CI - check logs
	<p>Explanation:The component interface cannot be found, contains invalid properties, or is not included in the Permissions List for the user that is specified in the service's associated adapter connection. This error will contain the specific PeopleSoft exception and error.</p>
	<p>Action:See the PeopleSoft error for details.</p>
1050	PeopleSoft Application Server is not responding
	<p>Explanation:The adapter attempted to connect to the PeopleSoft system, but the PeopleSoft system did not respond.</p>
	<p>Action:Check to see if the PeopleSoft application server is down, if there are network problems, or if the WmPeopleSoftAdapter\code\jars directory contains the correct psjoa.jar file.</p>

A Data Type Mapping for Adapter Services

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Data Type Mapping

The adapter maps the PeopleSoft data types between component interface methods to adapter services as follows:

PeopleSoft data type code	PeopleSoft API data type	Service Data Type
0 - Character	String	String
1 - Long Character	String	String
2 - Number	BigDecimal/Float/String	String
3 - Signed Number	BigDecimal/Float/String	String
4 - Date	String	String
5 - Time	String	String
6 - DateTime	String	String
7 - SubRecord (not supported with component interfaces)	Object	N/A
8 - Image (limited support with component interfaces)	N/A	N/A
9 - ImageReference (not supported with component interfaces)	N/A	N/A
10 - Collection Object	Object	Record List

Note:

Your PeopleSoft system validates and converts data types, not the adapter.